SENSE DSW EXERCISER

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1. PURPOSE

THE SENSE DSW PROGRAM IS DESIGNED TO CONTINUOUSLY SENSE THE DSW, USING THE AREA CODE SET INTO THE DATA ENTRY SWITCHES. THE PROGRAM WILL PRINT THE FIRST SENSE WORD RECEIVED AND THEREAFTER PRINT THE WORD RECEIVED ANYTIME IT CHANGES. THE INITIAL SENSE WILL BE NON-RESETABLE. THE PROGRAM WILL THEN SENSE RESETABLE, FOLLOWED BY A SENSE NON-RESETABLE. THEREAFTER ALL SENSES WILL BE NON-RESETABLE, UNLESS THE WORD RECEIVED CHANGES. FOLLOWING ANY CHANGE IN THE WORD, THE NEW WORD WILL BE PRINTED AND A RESETABLE SENSE ISSUED.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

THE BASIC DIAGNOSTIC LOADER IS REQUIRED, TO LOAD THE SENSE DSW PROGRAM.

2.2 EQUIPMENT REQUIREMENTS

A. 1442 CARD READ/PUNCH OR 1054 PAPER TAPE READER.
B. 1053/1816 TYPEWRITER, OR 1443 PRINTER.
C. 1800 PROCESSOR/CONTROLLER.

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3. OPERATING PROCEDURE

3.1 PROGRAM LOADING

REFER TO BASIC LOADER DOCUMENTATION FOR LOADING INSTRUCTIONS. AFTER LOADING PROGRAM WILL STOP AT WAIT 1. SEE SECT. 3.5, PROGRAM HALTS.

3.2 OPERATION

3.2.1 TYPICAL OPERATING PROCEDURE

A. WITH PROGRAM STOPPED AT WAIT 1, SET THE DESIRED AREA CODE PLUS ANY NECESSARY MODIFIERS IN THE DATA ENTRY SWITCHES EXACTLY AS THEY SHOULD APPEAR IN THE SENSE DSW IOCC WORD., SEE TABLE 1.

NOTE. DO NOT SET THE FUNCTION IN THE SWITCHES. ONLY THE AREA CODE AND MODIFIERS SHOULD BE SET.

B. PRESS START BUTTON.
C. WITH PROGRAM STOPPED AT WAIT 2, SET OPTIONS PER TABLE 2.

TABLE 1 - AREA CODE - REQUIRED

1. SWITCHES MAY BE SET PRIOR TO PROGRAM LOADING, OR AT WAIT 1.
2. ONCE PROGRAM EXECUTION HAS STARTED ANY CHANGE IN THESE SWITCHES WILL BECOME EFFECTIVE ONLY IF STOP, RESET, AND START BUTTONS ARE PRESSED, WHICH WILL RETURN PROGRAM TO WAIT 1.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X	NOT TO BE USED
Y Y Y Y Y.....	DESIRED AREA CODE
M M M M M M M.....	MODIFIERS AS NECESSARY

3.2.2 OPERATING OPTIONS

IF OPTIONS ARE DESIRED SET SWITCHES DESIRED FROM TABLE 2 AND DEPRESS THE START BUTTON.

TABLE 2 - OPERATING OPTIONS

1. THESE SWITCHES MAY BE CHANGED AT ANY TIME.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 13 14 15	DESCRIPTION
1.....	BYPASS PRINTOUT
1.....	USE 1443 AS OUTPUT PRINTER

3.3 TERMINATING PROCEDURE

THIS PROGRAM WILL RUN CONTINUOUSLY. TO TERMINATE, DEPRESS STOP BUTTON

3.4 RESTART PROCEDURE

DEPRESS STOP, RESET, AND START BUTTONS. PROGRAM SHOULD RETURN TO WAIT 1. IF THIS DOES NOT OCCUR, PROGRAM MUST BE RELOADED.

3.5 PROGRAM HALTS

PROGRAM WAITS ARE USED IN THIS PROGRAM, AND ARE IDENTIFIED BY REFERENCING THE B REG AND I REG.

A PROGRAM WAIT IS OF THE FORM,

30XX, (B REG).

A DESCRIPTION OF THE INDIVIDUAL PROGRAM WAITS CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING. A TYPICAL WAIT DESCRIPTION FOLLOWS. IT IS INCLUDED TO SHOW THE FORMAT OF THE LISTING, AND IT IS NOT NECESSARILY A DESCRIPTION OF AN ACTUAL WAIT.

```
**************************************************************************
3001 0  01ED            DC      WAIT1+1
                *
                *                       WAIT 1
                *
                *               ONE OF THE METERED I/O UNITS
                *               FAILED TO SEND A RESPONSE
                *               INTERRUPT TO THE PROGRAM.  INDEX
                *               REGISTER I WILL HAVE THE ADDRESS
                *               OF THE IOCC.  THE AREA CODE WILL
                *               INDICATE THE I/O UNIT NOT READY.
                *               IF A 2401/02 DRIVE IS NOT READY,
                *               PROGRAM WILL NOT STOP AT WAIT 1.
                *
**************************************************************************
```

B REG, (FIRST 4 DIGIT GROUP) CORRESPONDS TO B REG READING.

I REG, (SECOND 4 DIGIT GROUP) CORRESPONDS TO I REG READING.

4. PRINTOUTS

THIS PROGRAM HAS ONLY ONE PRINTOUT. THIS PRINTOUT WILL OCCUR ON THE INITIAL SENSE OF THE DSW AND ON ANY CHANGE OF THE SENSE WORD RECEIVED. THE PRINTOUT APPEARS AS FOLLOWS,

```
PIO  MID  DSW RECEIVED

BA00 A001 XXXX
```

5. COMMENTS

THIS PROGRAM IS DESIGNED PRIMARILY AS A SCOPING AID. THE PROGRAM HAS ND DIAGNDSTIC ABILITY, BUT WILL MERELY SENSE DSW OF SPECIFIED DEVICE. THE PRINTOUT IS PROVIDED AS A CONVENIENCE. ONE POSSIBLE USE IS AT INSTALLATION, WHERE POINTS COULD BE SHORTED AND PROGRAM WOULD PRINT WHAT IT RECEIVED.

6. APPENDIX (NONE)

```
02BC                    A8S
                        ORG     /3001
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    *XXXXXXXXXXXXXXXX PROGRAMMED WAITS XXXXXXXXXX
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    *
3001 0  0137            DC      WAIT1+1     WAIT FOR AREA CODE
                    *                       AND MODIFIER TO BE
                    *                       SET IN THE DATA SWS.
                    *                       PUSH START TO CONTINUE.
                    *
3002 0  013D            DC      WAIT2+1     WAIT FOR PROGRAM CONTROL
                    *                       SWITCHES TO BE SET.
                    *                       PUSH START TO CONTINUE.
                    *
3003 0  01DC            DC      WAIT3+1     1443 PRINTER IS NOT
                    *                       READY.  MAKE THE
                    *                       PRINTER READY AND
                    *                       PUSH START TO
                    *                       CONTINUE.
                    *
3004 D  D263            DC      WAIT4+1     THE TYPEWRITER IS
                    *                       NOT READY.  MAKE THE
                    *                       TYPEWRITER READY AND
                    *                       PUSH START TO CONTINUE.
                    *
3005                    DRG     300
012C 0  BA00            DC      /BA0D       PID
0120 00 0C0001EC    BEGN XIO  L MASK0       MASK ALL INTRPTS
012F 00 0C0001EE        XID  L  MASK1
0131 0  C856            LDD     REST        GET RESTART
0132 00 0C000000        STO  L  0           SET IN ZERO
                    *
0134 0  100D        START NOP
0135 0  C051            LD      DSW+1       GET SNSE IOCC
0136 0  3001        WAIT1 WAIT  1           WAIT FOR SW SETTING
0137 0  084C            XIO     ROBSW       READ DATA SWS
                    *
013B 0  C051            LD      BSW         GET DATA SWS
0139 D  F04C            EOR     OSW         SET IN SENSE IOCC
013A D  004C            STO     DSW+1       SAVE
013B D  C048            LD      DSW+1       GET AREA CODE
013C D  3002        WAIT2 WAIT  2           WAIT FOR CONTROL SWS
                    *
013D D  0848            XIO     OSW         SENSE DEVICE
013E D  004C            STO     DSW1        SAVE
                    *
013F 0  0844        PRINT XIO   ROBSW       READ DATA SWS
0140 D  C049            LD      BSW         GET SWS
0141 0  1802            SRA     2
0142 0  4804            BSC     E           IS BYPASS PRINT ON
0143 D  7013            MDX     BYPAS       YES
0144 0  C046            LD      DSW1        GET SENSE WD
0145 00 D400018E        STO  L  HEXWO       STORE IN CONV RTN
0147 00 440001A4        BSI  L  HEXCV       GO CONVERT TO HEX     SRC
0149 00 CC0001C4        LDD  L  HEXCD       GET CONVERTED WD
014B 00 DC000196        STD  L  MSG         SET IN MSG
                    *
0140 0  0836            X10     RDBSW       READ DATA SWS
014E 0  C03B            LD      BSW         GET SWS
014F 0  1009            SLA     9
0150 0  482B            BSC     +Z          SKIP = USE TYPE
0151 0  7003            MDX     PR143
0152 00 440001F2        BSI  L  LDGC        CONVERT AND TYPE      SRC
0154 0  7002            MDX     BYPAS
0155 00 44000106    PR143 BSI  L  PR43      PRINT ON 1443         SRC
0157 0  C02F        BYPAS LD    DSW+1       GET SENSE IOCC
0158 D  F034            EOR     ONE         AND RESET BIT
```



```
D159 0  0020            STO     DSW+1       SAVE
                    *
D15A 0  D82B            XIO     OSW         SENSE WITH RESET
D15B 0  D02F            STO     DSW1        SAVE
                    *
015C 0  C02A        SNNRS LD    DSW+1       GET SENSE IOCC
0150 0  1801            SRA     1           ELIMINATE RESET BIT
015E 0  1001            SLA     1
015F 0  0027            STO     DSW+1       SAVE
                    *
0160 0  0B25            XIO     OSW         SENSE-NO RESET
0161 0  D02A            STO     DSW2        SAVE
C162 0  F02B            EDR     DSW1
0163 00 4C18015C        BSC  L  SNNRS,+-    HAS WD CHANGED
0165 0  C026            LD      DSW2        GET NEW DSW
0166 0  0024            STO     DSW1        SAVE
0167 0  D81C            XIO     RDBSW       READ DATA SWS
0168 0  CD21            LD      BSW         GET SWS
0169 D  1802            SRA     2
016A 00 4C04017F        BSC  L  BPAS1,E     BRANCH = BYPASS PRINT
016C D  C01E            LD      DSW1        GET DSW
0160 00 D400018E        STO  L  HEXWO       SET
016F 00 440001A4        BSI  L  HEXCV       GO CONVERT            SRC
0171 00 CC0001C4        LDD  L  HEXCD       GET CONVERTED WD
0173 00 DC000196        STD  L  MSG         SET IN MSG
0175 0  0B0E            X10     ROBSW       READ DATA SWS
0176 0  C013            LD      BSW         GET SWS
0177 0  1009            SLA     9
0178 00 4C28017D        BSC  L  PR433,+Z    BRANCH = USE 1443
017A 00 440001F2        BSI  L  LDGC        CONVERT AND TYPE      SRC
017C 0  7002            MDX     BPAS1
0170 00 44000106    PR433 BSI  L  PR43      PRINT ON 1443         SRC
017F 0  C007        BPAS1 LD    DSW+1       GET SENSE IOCC
0180 D  F00C            EDR     ONE         SET RESET BIT
0181 0  00D5            STO     OSW+1       SAVE
0182 0  0803            X10     DSW         SENSE WITH RESET
D183 0  7008            MDX     SNNPS
                    *
                    *
                    *
                    *
D184    0000            BSS  E  D
0184 D  D18A        RDBSW DC    BSW         READ DATA SWS IOCC
0185 D  D240            DC      /024D
                    *
0186 0  D700        DSW   OC    /0700       SENSE DSW IOCC
0187 D  000D            OC      /0000
                    *
0188 00 4C000120    REST  BSC  L  BEGN      RESTART
                    *
018A 0  0000        BSW   OC    0           DATA SW STORAGE
018B 0  000D        DSW1  DC    D           1ST DSW STORAGE
018C D  0000        DSW2  DC    D           2NO OSW STORAGE
0180 0  0001        ONE   OC    1           CONSTANT ONE
                    *
                    *
                    *
018E    0000            BSS  E  D
018E 0  0009        PRARO DC    9           WORD COUNT
016F 0  3231        PRAR1 OC    /3231       8  A
0190 0  0A0A            DC      /0A0A       0  0
0191 D  0000            OC      /0000
0192 D  310A            DC      /310A       A  D
0193 D  DA01            OC      /0A01       D  1
0194 0  000D            DC      /0000
0195 0  000D            DC      /0000
0196 D  D00D        MSG   OC    /0D0D
0197 0  0000            DC      /0D0D
```

```
0198 0  FFFF        TERM  OC      /FFFF       TERMINATOR                  88A01350
                    *                                                     88A01360
0199 0  8121        OUTP1 DC      /8121       TPWRITER MSG AREA           88A01370
019A 0  0000        OUTPT DC      0                                       88A01380
019B 0  0000              DC      0                                       88A01390
019C 0  0000              OC      0                                       88A01400
019D 0  0000              DC      0                                       88A01410
019E 0  0000              DC      0                                       88A01420
019F 0  0000              OC      0                                       88A01430
01A0 0  0000              DC      0                                       88A01440
01A1 0  0000              DC      0                                       88A01450
01A2 0  0000              OC      0                                       88A01460
01A3 0  FFFF              DC      /FFFF                                   88A01470
                    *                                                     88A01480
                    *                   HEXADECIMAL CONVERSION            88A01490
                    *                                                     88A01500
01A4 0  0000        HEXCV OC      0                                   SE  88A01510
01A5 0  6204              LDX   2 4           CONVERSION INDEX            88A01520
                    *                                                     88A01530
01A6 0  C017              LD      HEXWD       GET WORD TO CONVERT         88A01540
01A7 0  1890              SRT     16          SET IN Q                    88A01550
01A8 0  1010              SLA     16          CLEAR A                     88A01560
01A9 0  1084        HEXC1 SLT     4           GET CHARACTER               88A01570
01AA 0  D001              STO     HEXC1+3                                 88A01580
01AB 00 67000000          LDX   L3 0          SET CODE TABLE INDEX        88A01590
                    *                                                     88A01600
01A0 00 C70001C6          LD    L3 CODEH      GET CHARACTER               88A01610
01AF 00 D60001BE          STO   L2 HEX00-1    SAVE                        88A01620
01B1 0  1010              SLA     16                                      88A01630
                    *                                                     88A01640
01B2 0  72FF              MDX   2 -1         CHECK IF DONE                88A01650
01B3 0  70F5              MDX     HEXC1                                   88A01660
                    *                                                     88A01670
01B4 0  C00D              LD      HEX00+3     PACK CODED WORDS            88A01680
01B5 0  1008              SLA     8                                       88A01690
01B6 0  E80A              OR      HEX00+2                                 88A01700
01B7 0  D00C              STO     HEXC0                                   88A01710
01B8 0  C007              LD      HEX00+1                                 88A01720
01B9 0  1008              SLA     8                                       88A01730
01BA 0  E804              OR      HEX00                                   88A01740
01BB 0  0009              STO     HEXCD+1                                 88A01750
                    *                                                     88A01760
01BC 00 4C8001A4          BSC   I HEXCV       RETURN TO USER          SX  88A01770
                    *                                                     88A01780
                    *                   CONSTANTS                         88A01790
                    *                                                     88A01800
018E 0  0000        HEXWD OC      0           WORD TO CONVERT             88A01810
018F 0  0000        HEX00 DC      0           *                           88A01820
01C0 0  0000              OC      0           * UNPACKED CODED            88A01830
01C1 0  0000              OC      0           * WORD                      88A01840
01C2 0  0000              DC      0           *                           88A01850
                    *                                                     88A01860
01C4    0000              BSS   E 0                                       88A01870
                    *                                                     88A01880
01C4 0  0000        HEXCD DC      0           * PACKED CODED WORD         88A01890
01C5 0  0000              OC      0           *                           88A01900
                    *                                                     88A01910
                    *                   CONVERSION TABLE                  88A01920
                    *                                                     88A01930
01C6 0  000A        CODEH DC      /000A       0                           88A01940
01C7 0  0001              DC      /0001       1                           88A01950
01C8 0  0002              OC      /0002       2                           88A01960
01C9 0  0003              DC      /0003       3                           88A01970
01CA 0  0004              OC      /0004       4                           88A01980
01CB 0  0005              DC      /0005       5                           88A01990
01CC 0  0006              DC      /0006       6                           88A02000
01CD 0  0007              OC      /0007       7                           88A02010
01CE 0  0008              OC      /0008       8                           88A02020
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01CF 0  0009              DC      /0009       9                           88A02030
01D0 0  0031              OC      /0031       A                           88A02040
01D1 0  0032              DC      /0032       B                           88A02050
01D2 0  0033              OC      /0033       C                           88A02060
01D3 0  0034              OC      /0034       D                           88A02070
01D4 0  0035              OC      /0035       E                           88A02080
01D5 0  0036              DC      /0036       F                           88A02090
                    *                                                     88A02100
                    *                                                     88A02110
                    *                   PRINT ON 1443 PRINTER             88A02120
                    *                                                     88A02130
01D6 0  0000        PR43  OC      0                                   SE  88A02140
01D7 0  C012              LO      SNSPR       GET SENSE IOCC              88A02150
01D8 0  0012              STO     SNSPR+1     SET                         88A02160
                    *                                                     88A02170
                    *                                                     88A02180
01D9 0  0810              XIO     SNSPR       CK FOR PRINTER READY        88A02190
01DA 0  4804              BSC     E                                       88A02200
01DB 0  3003        WAIT3 WAIT    3           PRINTER IS NOT READY        88A02210
01DC 0  0813              XIO     WRPR        WRITE                       88A02220
                    *                                                     88A02230
01DD 0  080C        PR431 XIO     SNSPR       WAIT FOR NOT COMPLTE        88A02240
01DE 0  1002              SLA     2                                       88A02250
01DF 0  4810              BSC     -           IS PRINTER COMPLETE         88A02260
01E0 0  70FC              MDX     PR431       NO                          88A02270
                    *                                                     88A02280
01E1 0  C009              LO      SNSPR+1     GET IOCC                    88A02290
01E2 0  F0AA              EOR     ONE         SET BIT 15                  88A02300
01E3 0  0007              STO     SNSPR+1     SAVE                        88A02310
                    *                                                     88A02320
01E4 0  0805        PR432 XIO     SNSPR       SENSE                       88A02330
01E5 0  1801              SRA     1                                       88A02340
01E6 0  4804              BSC     E           IS PRINTER BUSY             88A02350
01E7 0  70FC              MDX     PR432       YES                         88A02360
                    *                                                     88A02370
                    *                                                     88A02380
01E8 00 4C8001D6          BSC   I PR43        EXIT                    SX  88A02390
                    *                                                     88A02400
                    *                   CONSTANTS                         88A02410
                    *                                                     88A02420
01EA    0000              BSS   E 0                                       88A02430
01EA 0  3700        SNSPR DC      /3700       SENSE IOCC                  88A02440
01EB 0  0000              DC      0                                       88A02450
                    *                                                     88A02460
01EC 0  FFFF        MASKO DC      /FFFF       MASK IOCCS                  88A02470
01ED 0  0480              DC      /0480                                   88A02480
01EE 0  FFFF        MASK1 DC      /FFFF                                   88A02490
01EF 0  0481              DC      /0481                                   88A02500
                    *                                                     88A02510
                    *                                                     88A02520
01F0 0  018E        WRPR  DC      PRARO       WRITE IOCC                  88A02530
01F1 0  3500              OC      /3500                                   88A02540
                    *                                                     88A02550
                    *                   ROUTINE TO CONVERT PRINTER        88A02560
                    *                   PACKED CODE TO PACKED TYPE        88A02570
                    *                                                     88A02580
01F2 0  0000        LOGC  DC      0                                   SE  88A02590
01F3 0  1010              SLA     16                                      88A02600
01F4 0  D036              STO     LOX00       CLEAR HALF WD SW            88A02610
01F5 0  692E              STX   1 LOGC7+1     SAVE IX 1                   88A02620
01F6 0  6A2F              STX   2 LOGC8+1     SAVE IX 2                   88A02630
01F7 0  6B30              STX   3 LOGC9+1     SAVE IX 3                   88A02640
01F8 00 67000000          LDX   L3 /0000      IX 3 = MSG WORD             88A02650
01FA 00 C700018F    LOGC1 LO    L3 PRAR1      GET WD TO CONVERT           88A02660
01FC 0  002F              STO     LOX02       SAVE                        88A02670
01FD 00 F4000198          EOR   L TERM                                    88A02680
01FF 0  4818              BSC     ←           IS IT A TERM                88A02690
0200 0  7022              MDX     LOGC7       YES                         88A02700
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```
0201 0  C02A       LOGC2 LO      LOX02      GET WD                    88A02710
0202 0  180C             SRA     12         SAVE ZONE                 88A02720
0203 0  D001             STO     LOGC3+1                              88A02730
0204 00 65000000   LOGC3 LDX  L1 0          IX 1 = ZONE               88A02740
0206 00 C500022E         LO   L1 LOX04      GET AORS OF ZONE          88A02750
0208 0  D007             STO     LOGC5+1    SAVE                      88A02760
0209 0  C022             LO      LOX02      GET WD TO CONVERT         88A02770
020A 0  1004             SLA     4          SAVE POSITION             88A02780
020B 0  180C             SRA     12                                   88A02790
020C 0  D001             STO     LOGC4+1                              88A02800
020D 00 66000000   LOGC4 LDX  L2 0          IX 2 = POSITION           88A02810
020F 00 C6000000   LOGC5 LD   L2 0          GET TYPEWRITER CODE       88A02820
0211 00 7400022B         MDX  L  LOX00,0    IS THIS FIRST HALF        88A02830
0213 0  7007             MDX     LOGC6      NO                        88A02840
0214 0  0018             STO     LOX03      YES                       88A02850
0215 00 7401022B         MDX  L  LOX00,1    SET TO SECOND HALF        88A02860
0217 0  C014             LO      LOX02      GET WD TO CONVERT         88A02870
0218 0  1006             SLA     8          SET TO SECOND HALF        88A02880
0219 0  D012             STO     LOX02      SAVE                      88A02890
021A 0  70E6             MDX     LOGC2      GO CONVERT                88A02900
                  *                                                   88A02910
                  *                SECOND HALF WORD                   88A02920
                  *                                                   88A02930
021B 0  1808       LOGC6 SRA     8          MOVE TO SECOND HALF       88A02940
021C 0  F010             EOR     LOX03      COMBINE WITH FIRST        88A02950
021D 00 0700019A   LOGC8 STO  L3 OUTPT      SET IN MSG                88A02960
021F 0  1010             SLA     16                                   88A02970
0220 0  D00A             STO     LOX00      SET TO FIRST HALF         88A02980
0221 0  7301             MDX  3  1          IX 3 = NEXT WD            88A02990
0222 0  70D7             MDX     LOGC1      CONVERT NEXT WD           88A03000
                  *                                                   88A03010
                  *                FOUND A TERMINATOR                 88A03020
                  *                                                   88A03030
0223 00 65000000   LOGC7 LDX  L1 0          RESTORE IX 1              88A03040
0225 00 66000000   LOGC8 LDX  L2 0          RESTORE IX 2              88A03050
0227 00 67000000   LOGC9 LDX  L3 0          RESTORE IX 3              88A03060
0229 00 4C00025F         BSC  L  LOG00      GO PRINT                  88A03070
                  *                                                   88A03080
                  *                CONSTANTS                          88A03090
                  *                                                   88A03100
022B 0  0000       LOX00 DC      0          HALF WORD SW              88A03110
022C 0  0000       LOX02 DC      0          TEMP STORAGE FOR          88A03120
                  *                       WORD TO CONVERT           88A03130
022D 0  0000       LOX03 DC      0          TEMP STORAGE FOR          88A03140
                  *                       TYPEWRITER CODE           88A03150
022E 0  0234       LOX04 DC      PR00       ADRS OF ZONE 0            88A03160
022F 0  0230             DC      PR01-2     ADRS OF ZONE 1            88A03170
0230 0  0248             DC      PR02       ADRS OF ZONE 2            88A03180
0231 0  0254             DC      PR03-1     ADRS OF ZONE 3            88A03190
                  *                                                   88A03200
                  *                                                   88A03210
                  *                                                   88A03220
0232 0  C02B       LOGCA LO      PRSP       GET CARRIAGE RETURN       88A03230
0233 0  70E9             MDX     LOGCB                                88A03240
                  *                                                   88A03250
                  *                PRINTER CODE TO TYPEWRITER         88A03260
                  *                CODE CONVERSION TABLE              88A03270
                  *                                                   88A03280
0234 0  2100       PR00  DC      /2100      BLANK                     88A03290
0235 0  FC00             DC      /FC00      1                         88A03300
0236 0  D800             DC      /D800      2                         88A03310
0237 0  DC00             DC      /DC00      3                         88A03320
0238 0  F000             DC      /F000      4                         88A03330
0239 0  F400             DC      /F400      5                         88A03340
023A 0  0000             DC      /0000      6                         88A03350
023B 0  0400             DC      /0400      7                         88A03360
023C 0  E400             DC      /E400      8                         88A03370
023D 0  E000             DC      /E000      9                         88A03380
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023E 0  C400              DC      /C400      0                         88A03390
023F 0  9A00       PR01   DC      /9A00      S                         88A03400
0240 0  9E00              DC      /9E00      T                         88A03410
0241 0  B200              DC      /B200      U                         88A03420
0242 0  B600              DC      /B600      V                         88A03430
0243 0  9200              DC      /9200      W                         88A03440
0244 0  9600              DC      /9600      X                         88A03450
0245 0  A600              DC      /A600      Y                         88A03460
0246 0  A200              DC      /A200      Z                         88A03470
0247 0  2100              DC      /2100      BLANK                     88A03480
0248 0  8E00       PR02   DC      /8E00      -                         88A03490
0249 0  7E00              DC      /7E00      J                         88A03500
024A 0  5A00              DC      /5A00      K                         88A03510
024B 0  5E00              DC      /5E00      L                         88A03520
024C 0  7200              DC      /7200      M                         88A03530
0240 0  7600              DC      /7600      N                         88A03540
024E 0  5200              DC      /5200      O                         88A03550
024F 0  5600              DC      /5600      P                         88A03560
0250 0  6600              DC      /6600      Q                         88A03570
0251 0  6200              DC      /6200      R                         88A03580
0252 0  4200              DC      /4200      -                         88A03590
0253 0  4000              DC      /4000      $                         88A03600
0254 0  0600              DC      /0600      *                         88A03610
0255 0  3E00       PR03   DC      /3E00      A                         88A03620
0256 0  1A00              DC      /1A00      B                         88A03630
0257 0  1E00              DC      /1E00      C                         88A03640
0258 0  3200              DC      /3200      D                         88A03650
0259 0  3600              DC      /3600      E                         88A03660
025A 0  1200              DC      /1200      F                         88A03670
025B 0  1600              DC      /1600      G                         88A03680
025C 0  2600              DC      /2600      H                         88A03690
025D 0  2200              DC      /2200      I                         88A03700
025E 0  8100       PRSP   DC      /8100      CARRIAGE RETURN           88A03710
                  *                                                   88A03720
                  *                TYPEWRITER ROUTINE                 88A03730
                  *                                                   88A03740
025F 0  0824       LOG00 XIO     SENSE      SENSE FOR READY           88A03750
0260 0  180A             SRA     10                                   88A03760
0261 0  4804             BSC     E                                    88A03770
                  *                                                   88A03780
0262 0  3004       WAIT4 WAIT    4          TYPEWRTR IS NOT READY     88A03790
                  *                                                   88A03800
0263 0  1010             SLA     16                                   88A03810
0264 0  0022             STO     WROSW      CLEAR HALF WD SW          88A03820
0265 0  6300             LDX  3  0                                    88A03830
                  *                                                   88A03840
0266 00 C7000199   LOG01 LD   L3 OUTP1      GET PRINT WD              88A03850
0268 0  D010             STO     IOARA      SET IN OUTPUT AREA        88A03860
                  *                                                   88A03870
0269 00 F4000198         EOR  L  TERM       CK FOR TERMINATOR         88A03880
026B 00 4C18027F         BSC  L  LOG02,+-   EXIT                      88A03890
                  *                                                   88A03900
                  *                OUTPUT A CHARACTER                 88A03910
                  *                                                   88A03920
0260 0  0814       XIOWR XIO     WRITE      WRITE CHARACTER           88A03930
                  *                                                   88A03940
026E 0  0815       XIOSN XIO     SENSE      CHECK BUSY                88A03950
                  *                                                   88A03960
026F 0  1808             SRA     11                                   88A03970
0270 0  4804             BSC     E                                    88A03980
0271 0  70FC             MDX     XIOSN      BUSY                      88A03990
                  *                                                   88A04000
                  *                                                   88A04010
                  *                CHECK FOR 1ST 1/2 WORD             88A04020
                  *                                                   88A04030
0272 0  C014             LO      WROSW      GET 1/2 WORD SWITCH       88A04040
0273 0  4804             BSC     E          SKIP = FIRST HALF         88A04050
0274 0  7006             MDX     LOG03      GO SETUP FOR NEXT WD      88A04060
```

```
                    *                                                   8BA0407D
                    *                                                   8BA0408D
                    *                 SET UP FOR 2ND 1/2 WORD           8BA0409D
                    *                                                   8BA04100
0275 0  C01D              LD        IOARA      GET WORD IN 1D AREA      8BA0411D
0276 0  100B              SLA       B          POSITION 2ND 1/2 WD      8BA04120
0277 0  D00E              STO       IOARA                               8BA04130
0278 00 74010287          MDX   L   WRDSW,1    BUMP WORD SWITCH         8BA04140
027A 0  70F2              MDX       XIOWR      GO WRITE 2ND 1/2 WD      8BA04150
                    *                                                   8BA04160
                    *                 SET UP FOR NEXT WORD              8BA04170
                    *                                                   8BA04180
027B 0  7301        LOG03 MDX     3 1          NEXT WORD INDEX          8BA04190
027C 00 74010287          MDX   L   WRDSW,1    BUMP WORD SW             8BA04200
027E 0  70E7              MDX       LOG01      GO GET NEXT WORD         8BA04210
                    *                                                   8BA04220
                    *                 EXIT                              8BA04230
                    *                                                   8BA04240
027F 00 4C8001F2    LOG02 BSC   I   LOGC       EXIT                SX   8BA04250
                    *                                                   8BA04260
                    *                 CONSTANTS                         8BA04270
                    *                                                   8BA04280
0282    0000              BSS   E   0                                   8BA04290
0282 0  0286        WRITE DC        IOARA      WRITE IOCC               8BA04300
0283 0  0902              DC        /0902                               8BA04310
0284 0  0000        SENSE DC        /0000      SENSE IOCC               8BA04320
0285 0  0F03              DC        /0F03                               8BA04330
0286 0  0000        IOARA DC        0          OUTPUT AREA              8BA04340
0287 0  0000        WRDSW DC        0          HALF WORD SW             8BA04350
0288    012D              END       BEGN                       8BA0435 8BA0436D
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BEGN	012D	0188,0288
BPAS1	017F	016A,017C
BSW	018A	0138,0140,014E,0168,0176,0184
BYPAS	0137	0143,0154
CODCH	01C6	01AD
OSW	0186	0135,0139,013A,013B,0130,0157,0159,015A,015C,015F, 0160,017F,0181,0182
DSW1	C188	013E,0144,0158,0162,0166,016C
DSW2	018C	0161,0165
HEXCD	01C4	0149,0171,0187,0188
HEXCV	01A4	0147,016F,018C
HEXC1	01A9	C1AA,01B3
HEXWO	018E	0145,0160,01A6
HEXOO	01BF	01AF,01B4,0186,018B,01BA
IOARA	0286	0268,0275,0277,0282
LOGC	01F2	0152,017A,027F
LOGCA	0232	
LOGCB	021D	0233
LOGC1	01FA	0222
LOGC2	0201	021A
LOGC3	0204	0203
LOGC4	020D	020C
LOGC5	020F	0208
LOGC6	021B	0213
LOGC7	0223	01F5,0200
LOGC8	0225	01F6
LOGC9	0227	01F7
LOGO0	025F	0229
LOGO1	0266	027F
LOGO2	027F	026B
LOGO3	027B	0274
LOX00	022B	01F4,0211,0215,0220
LOX02	022C	01FC,0201,0209,0217,0219
LOX03	022D	0214,021C
LOX04	022E	0206
MASK0	01EC	012D
MASK1	01EE	012F
MSG	0196	014B,0173
CNE	0180	0158,0180,01E2
OUTPT	019A	D21D
OUTP1	0199	0266
PRAR0	01BE	01F0
PRAR1	018F	01FA
PRINT	013F	
PRSP	025E	0232
PROO	0234	D22E
PRO1	023F	022F
PRO2	024B	0230
PRO3	0255	0231
PR143	0155	0151
PR43	0106	0155,017D,01E8
PR431	01D0	01E0
PR432	01E4	01E7
PR433	017D	017B
ROBSW	0184	0137,013F,014D,0167,D175
REST	018B	0131
SENSE	0284	025F,026E
SNNRS	015C	0163,0183
SNSPR	01EA	01D7,01DB,01D9,0100,01E1,01E3,01E4
START	0134	
TERM	019B	01FD,0269
WAIT1	0136	3001
WAIT2	013C	3002
WAIT3	01DB	30D3
WAIT4	0262	30D4

SENSE DSW EXERCISER

WRDSW	0287	0264,0272,0276,027C
WRITE	0282	0260
WRPR	01F0	01DC
XIOSN	026E	0271
XIOWR	026D	027A

TABLE OF CONTENTS

1.0 PURPOSE

TO PROVIDE THE CUSTOMER ENGINEER WITH A PROGRAM THAT SETS CORE TO SELECTED PATTERNS TO ALLOW V (REF) TO BE OPTIMIZED AS SPECIFIED ON LOGIC PAGE SA022 (SJ-2 ADJUSTMENT PROCEDURE) OR LOGIC PAGE SD011 (SJ-4 ADJUSTMENT PROCEDURE).

2.0 PREREQUISITES

2.1 EQUIPMENT REQUIREMENT

1442 CARD READ-PUNCH OR 1054 PAPER TAPE READER.

2.2 PROGRAM REQUIREMENT

1800 BASIC DIAGNOSTIC LOADER.

3.0 USE PROCEDURE

3.1 LOADING

TWO PROGRAM DECKS ARE PROVIDED. THE ONLY DIFFERENCE BETWEEN THE TWO DECKS IS THE CORE LOCATIONS INTO WHICH THEY ARE LOADED. THE FIRST DECK (08C0--LOW CORE ADJUSTMENT PROGRAM) LOADS INTO THE LAST 2K OF LOWER 32K CORE AND IS USED TO ADJUST THE FIRST 8K OF CORE. (NOTE. THE FIRST DECK IS ASSEMBLED FOR A 32K MACHINE, THE USER SHOULD IGNORE HIGHER ORDER BITS WHEN REFERENCING THE LISTING AND DOCUMENTATION.)

THE SECOND DECK (08C1 -- HIGH CORE ADJUSTMENT PROGRAM) LOADS INTO THE FIRST 2K OF CORE AND IS ONLY USED TO ADJUST ABOVE 8K. (THIS DECK IS NOT USED IF THE MACHINE HAS 8K OR LESS.)

CLEAR ALL STORAGE PROTECTION BITS BEFORE LOADING EITHER PROGRAM.
SET SENSE/PROGRAM SWITCHES TO 00.
SEE 1800 BASIC DIAGNOSTIC LOADER DOCUMENTATION FOR LOADING PROCEDURE.

3.2 OPERATING

3.2.1 SELECT THE PROGRAM DECK THAT IS REQUIRED FOR THE 8K WHICH IS ASSOCIATED WITH THE V(REF) POTENTIOMETER THAT IS TO BE ADJUSTED. (SEE SECTION 3.1.1 FOR DECK SELECTION.)

3.2.2 LOAD PROGRAM WITH SENSE/PROGRAM SWITCHES SET TO 00.
(SEE LOGIC PAGE SA022 OR SD011, FIGURE 1 FOR V(Z) VALUE.)
PERCENT. (SEE LOGIC PAGE SA022 OR SD011, FIGURE 1 FOR V(Z) VALUE.)
PROGRAM WILL STOP AT WAIT 1.

3.2.4 SET SENSE/PROGRAM SWITCHES TO 01. (SELECTING BEST CASE PATTERN .)

3.2.5 SET MODE SWITCH TO 'RUN'.

SET WRITE STORAGE PROTECT SWITCH TO 'YES'.
SET CHECK STOP SWITCH TO 'ON'.
DEPRESS THE RESET PUSHBUTTON.
DEPRESS THE START PUSHBUTTON.

3.2.6 PROGRAM COMPLETED AT WAIT 2.

SET MODE SWITCH TO 'DISPLAY'.
SET WRITE STORAGE PROTECT SWITCH TO 'NO'.
WHILE HOLDING DOWN THE CLEAR STORAGE PUSHBUTTON DEPRESS THE START PUSHBUTTON.

3.2.7 LOWER V(REF) UNTIL A PARITY FAILURE OCCURS.

RECORD THE VALUE OF V(REF).

3.2.8 SET SENSE/PROGRAM SWITCHES TO 01.

3.2.9 SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 3.2.5 AND3.2.6.

3.2.10 RAISE V(REF) UNTIL A PARITY ERROR OCCURS.
RECORD THE VALUE OF V(REF).

3.2.11 SET SENSE/PROGRAM SWITCHES TO 02. (SELECTING COMPLEMENT BEST CASE PATTERN).

3.2.12 SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 3.2.5, 3.2.6, AND 3.2.7.

3.2.13 SET SENSE/PROGRAM SWITCHES TO 02. (SELECTING COMPLEMENT BEST CASE PATTERN.)

3.2.14 SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 3.2.5, 3.2.6, AND 3.2.10.

3.2.15 SET V(Z) AT V(Z) NOMINAL+6 PERCENT.

3.2.16 REPEAT SETS 3.2.4 THROUGH 3.2.14 FOR THIS VALUE OF V(Z).

3.2.17 TAKE THE HIGHEST OF THE 4 VALUES OF V(REF) FOUND BY LOWERING V(REF) AND THE LOWEST OF THE FOUR VALUES OF V(REF) FOUND BY RAISING V(REF). SET V(REF) TO THE VALUE WHICH IS THE AVERAGE OF THESE TWO VOLTAGES.

3.2.18 REPEAT STEPS 3.2.1 THROUGH 3.2.17 UNTIL ALL V(REF) POTENTIOMETERS HAVE BEEN ADJUSTED.

3.3 SENSE/PROGRAM SWITCHES

SETTING	MEANING
01	RUN BEST CASE PATTERN. A WAIT WILL OCCUR AFTER THE PATTERN HAS BEEN SET UP TO ADJUST V(REF).
02	RUN COMPLEMENT BEST CASE PATTERN. A WAIT WILL OCCUR AFTER THE PATTERN HAS BEEN SET UP TO ADJUST V(REF). DETERMINE AN UPPER LIMIT.

3.4 WAITS

3.4.1 NORMAL WAITS

PROGRAM WAITS ARE IDENTIFIED BY THE B AND I REGISTER AND ARE FOUND AT THE BEGINNING OF THE LISTING.

3.4.2 ERROR WAITS - (NONE)

3.5 RESTART PROCEDURE. DEPRESSING 'RESET' AND THE 'START' PUSHBUTTON

WILL CAUSE THE PROGRAM TO BE RE-ENTERED AND THE SENSE/PROGRAM SWITCHES READ.

4.0 PRINTOUTS (NONE)

5.0 COMMENTS

5.1 PATTERNS

5.1.1 BEST CASE PATTERN. FOR EACH ADDRESS BIT 7 IS EXCLISIVE CRED WITH BIT 9. IF THE RESULT IS A ONE, FFFF IS WRITTEN INTO THAT ADDRESS. IF THE RESULT IS A ZERC, 0000 IS WRITTEN INTO THAT ADDRESS.

THIS SHOULD SET UP GROUPS OF 64 POSITIONS OF EITHER ONES OR ZEROS IN THE FOLLOWING MANNER. SELECT X AND Y LINE ADDRESSES TO DETERMINE THE VALUE SET.

BIT VALUE FOR BEST CASE PATTERN

X- LINE ADRS	Y- LINE ADDRESS 0000000-0111111	Y- LINE ADDRESS 1000000-1111111
0 0 0 0 0 0	0	1
0 0 0 0 0 1	0	1
0 0 0 0 1 0	1	0
0 0 0 0 1 1	1	0
0 0 0 1 0 0	0	1
0 0 0 1 0 1	0	1
. .	.	.
. .	.	.
. .	.	.
0 0 1 1 1 1	1	0
A U X 0	0	1
A U X 1	0	1
A U X 2	0	1
A U X 3	0	1
1 0 0 0 0 0	1	0
1 0 0 0 0 1	1	0
1 0 0 0 1 0	0	1
. .	.	.
. .	.	.
. .	.	.
1 1 1 1 1 0	0	1
1 1 1 1 1 1	0	1

5.1.2 COMPLEMENT BEST CASE PATTERN. CORE IS SET UP AS SPECIFIED BY 5.1.1, THEN THE CONTENTS OF EACH CORE LOCATION ARE COMPLEMENTED.

5.2 SUBROUTINES

5.2.1 BEST CASE PATTERN AND COMPLEMENT BEST CASE PATTERN SUBROUTINE (BCP).

THIS SUBROUTINE IS ENTERING WITH INDEX REGISTER 1 SET TO 0000 AND INDEX REGISTER 2 SET TO FFFF TO SET UP THE BEST CASE PATTERN AND INDEX REGISTER 1 SET TO FFFF AND INDEX REGISTER 2 SET TO 0000 TO SET UP THE COMPLEMENT BEST CASE PATTERN. SYMBOLIC LOCATION 'PLOC' CONTAINS THE STARTING LOCATION OF AREA WHERE THE PATTERN IS TO BE SET UP. INDEX REGISTER 3 CONTAINS A COUNT OF THE NUMBER OF CORE WORDS TO BE SET UP.

5.2.2 SET STORAGE PROTECTION BITS SUBROUTINE (SPV).

THIS SUBROUTINE SETS SPV BITS IN THOSE CORE LOCATIONS WHICH CONTAINS FFFF. INDEX REGISTER 1 CONTAINS THE STARTING LOCATION OF THE AREA WHERE THE PATTERN IS SET UP.

INDEX REGISTER 3 CONTAINS A COUNT OF THE NUMBER OF CORE WORDS CONTAINED IN THE PATTERN AREA.

BECAUSE OF THE ODD PARITY RESTRICTION IMPOSED BY THE HARD-WARE, ONLY 17 BITS CAN BE ON OR OFF IN ANY CORE LOCATION. HOWEVER EXECUTING THE COMPLEMENT OF A PATTERN CAUSES THE PARITY BIT TO BE COMPLETELY CHECKED.

6. APPENDIX (NONE)

LAST PAGE

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                    A8S
3001                ORG     /3001                                   8C000020
                                                                    8C000030
                                                                    8C000040
                *                                                   8C000050
                *           1800 CORE ADJUSTMENT PROGRAM            8C000060
                *                                                   8C000070
                ********** NOTES **********                         8C000080
                *                                                   8C000090
                *                                                   8C000100
                *               OPERATOR SHOULD CLEAR               8C000110
                *               SPV 8ITS EACH TIME 8EFORE           8C000120
                *               THE CORE ADJUSTMENT PROG            8C000130
                *               IS LOAOED                           8C000140
                *                                                   8C000150
                *               SET CK STOP SW TO ON.               8C000160
                *                                                   8C000170
                *               SET WRITE STORAGE PROTECT           8C000180
                *                  SWITCH TO YES FOR                8C000190
                *                  EXECUTING PROGRAM AND            8C000200
                *                  TO NO WHILE ADJUSTING            8C000210
                *                  V REF.                           8C000220
                *                                                   8C000230
                *               SENSE/PROGRAM SW SETTINGS           8C000240
                *                                                   8C000250
                *                  01  SET UP 8EST CASE            8C000260
                *                        PATTERN                    8C000270
                *                                                   8C000280
                *                  02  SET UP COMPLEMENT           8C000290
                *                        8EST CASE PATTERN          8C000300
                *                                                   8C000310
                *                                                   8C000320
                *                                                   8C000330
                ********************************************      8C000340
                *                                                   8C000350
                ********** WAITS **********                         8C000360
                *                                                   8C000370
3001 0 7838             DC      WAIT1&1     SELECT PATTERN          8C000380
                *                                                   8C000390
                *                           SET PATTERN NUM8ER      8C000400
                *                           OF DESIREO PATTERN      8C000410
                *                           IN SENSE/PROG SWS       8C000420
                *                                                   8C000430
                *                           OEPRESS RESET 8UTTON    8C000440
                *                                                   8C000450
                *                           DEPRESS START 8UTTON    8C000460
                *                                                   8C000470
                *                           NOTE-- ACCUMULATOR      8C000480
                *                           SHOWS THE SETTING OF    8C000490
                *                           THE PRESENT SENSE/      8C000500
                *                           PROGRAM SWITCHES        8C000510
                *                                                   8C000520
                *                                                   8C000530
3002 0 785E             OC      WAIT2&1     PROGRAM COMPLETEO       8C000540
                *                                                   8C000550
                *                           ACCUMULATOR SHOWS       8C000560
                *                           PATTERN NUM8ER OF       8C000570
                *                           PATTERN THAT WAS SET    8C000580
                *                           UP IN CORE.             8C000590
                *                                                   8C000600
                *                           AOJUST V REF WHILE      8C000610
                *                           CYCLING IN THE          8C000620
                *                           AUTOMATIC DISPLAY       8C000630
                *                           MODE.                   8C000640
                *                                                   8C000650
                *                           TO SET UP NEXT          8C000660
                *                           PATTERN AFTER V REF     8C000670
                *                           HAS 8EEN AOJUSTEO--     8C000680
                *                                                   8C000690
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                *                           PLACE NEXT PATTERN      8C000700
                *                           NUM8ER IN THE           8C000710
                *                           SENSE/PROGRAM SWS       8C000720
                *                                                   8C000730
                *                           TURN MODE SW TO         8C000740
                *                           RUN ** PLUS **          8C000750
                *                           TURN ON WR SPV SW       8C000755
                *                                                   8C000760
                *                           DEPRESS RESET           8C000770
                *                           PUSH8UTTON              8C000780
                *                                                   8C000790
                *                           DEPRESS START           8C000800
                *                           PUSH8UTTON              8C000810
                *                                                   8C000820
                *                                                   8C000830
                ********************************************      8C000840
                *                                                   8C000850
                *                                                   8C000860
7800                    ORG     /7800                               8C000870
7800 C C000             OC      /C000       PID                     8C000880
                ************************************************* 8C000890
                *                                               * 8C000900
                *              CORE SIZE OETERMINER             * 8C000910
                *                                               * 8C000920
                ************************************************* 8C000930
7801 0 61C0     START   LDX   1 0           SET CTRL INDEX 1        8C000940
7802 0 C007             LO      STGCK&I     GET CONSTANT FFFF & SET 8C000950
7803 0 D1FF             STO   1 -1          IN MAXIMUM ADORESS      8C000960
                *                                                   8C000970
7804 0 7500 1000 STGLP  MDX   L1 /1000      AOVANCE CONTROL INDEX   8C000980
7806 0 1000             NOP     0           SAFETY NOP FOR 32K CORE 8C000990
7807 0 1010             SLA     16          CLEAR ACCUMULATOR AND SET 8C001000
7808 0 01FF             STO   1 -1          IN 4K CORE 8LOCK MAX ADOR 8C001010
                *                                                   8C001020
7809 0 C400 FFFF STGCK  LD    L /FFFF       GET MAX CORE ADDRESS OATA 8C001030
7808 0 4C20 7804        BSC   L STGLP,Z     CHECK IT FOR ZERO       8C001040
                *                           8RANCH LOOP IF NOT MAX  8C001050
                *                                                   8C001060
780D 0 71FF             MDX   1 -1          DECREMENT X1 TO ACTUAL  8C001070
                *                           MAXIMUM AOORESS THIS CPU 8C001080
                *                                                   8C001090
780E 0 1000             NOP     0           SAFETY NOP FOR 32K CORE 8C001100
780F 0 6D00 78A4        STX   L1 SIZE       SET PROPER LIMIT        8C001110
                *                                                   8C001120
                *                                                   8C001130
                *                       SET UP RESTART LINKAGE      8C001140
                *                                                   8C001150
                *                                                   8C001160
7811 0 CC00 7898 SETLK  LOO   L LINK        LOAO RESTART ADOR       8C001170
7813 0 0C00 0000        STD   L 0           * WITHOUT CORE SIZE CK  8C001180
                *                                                   8C001190
7815 0 1010             SLA     16          CLEAR A REG             8C001200
7816 0 0400 78AA        STO   L X3CTL       RESET CTRLS             8C001210
7818 0 0001             STO     CSP&1       RESET CTRLS             8C001220
                *                                                   8C001230
7819 0 2C40 0000 CSP    STS   L 0,/40       CLEAR ALL SPV BITS      8C001240
7818 0 C0FE             LO      CSP&1       GET CLEAR ADDR          8C001250
781C 0 8400 78A1        A     L ONE         AOV AODR PLUS ONE       8C001260
781E 0 D0F8             STO     CSP&1       SAVE NEW ADDR           8C001270
781F 0 F400 78A4        EOR   L SIZE        CK FOR ALL OF CORE      8C001280
7821 0 4C20 7819        BSC   L CSP,Z       BR LOOP                 8C001290
                *                                                   8C001300
                *                       ADJUST CORE SIZE AND        8C001310
                *                       * CONSTANTS                 8C001320
                *                                                   8C001330
7823 0 C078             LD      LLIM2       ADJUST CONSTANT         8C001340
7824 0 E07F             ANO     SIZE                                8C001350
7825 0 D079             STO     LLIM2       SET LO LIMIT 2          8C001360
```

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7826 0 C400 78A7          LO   L  ULIM1                              8C001370
7828 0 E078               AND       SIZE                             8C001380
7829 0 D070               STO       ULIM1       SET UP LIMIT 1       8C001390
                     *                      FIND LDDP CONTRDLS       8C001400
782A 0 C07C               LD        ULIM1                            8C001410
7828 0 9072               S         LLIM1                            8C001420
782C 0 D073               STO       LDWRL       SET LO CTRL LIMIT    8C001430
782D 0 C076               LD        SIZE                             8C001440
782E 0 9070               S         LLIM2                            8C001450
782F 0 9071               S         ONE                              8C001460
7830 0 0077               STO       UPERL       UPPER LIMIT CONTROL  8C001470
                     *                      REAO SENSE/PROG SWITCHES 8C001480
7831 0 0868          READ XIO       RDSWS                            8C001490
                     *                                               8C001500
                     *                      CK SW VALIDITY           8C001510
                     *                                               8C001520
7832 0 1808               SRA       8                                8C001530
7833 0 D06E               STD       PATNO       SAVE PATTERN NUM8ER  8C001540
7834 0 4C18 783A          BSC  L    WAIT1,&-                         8C001550
7836 0 906F               S         TWO                              8C001560
7837 0 4C08 783C          8SC  L    PIVDT,&                          8C001570
7839 0 C068               LD        PATND                            8C001580
783A 0 3001          WAIT1 WAIT     1           SELECT SENSE/PROGRAM 8C001590
                     *                          * SW OPTIDNS ANO     8C001600
                     *                          * OEPRESS RESET ANO  8C001610
                     *                          * START PUSHBUTTONS  8C001620
                     *                                               8C001630
7838 0 70F5               MOX       REAO                             8C001640
                     *                                               8C001650
                     *                      PIVOT ON SELECTEO PATTERN 8C001660
                     *                                               8C001670
783C 0 C065          PIVOT LD       PATNO                            8C001680
7830 0 4C04 7842          8SC  L    PAT01,E                          8C001690
                     *                                               8C001700
                     *                      SET UP 8CP DR COMPL. 8CP 8C001710
                     *                                               8C001720
783F 0 61FF          PAT02 LOX   1  -1          SET FDR COMPL 8CP    8C001730
7840 0 6200               LDX   2  0                                 8C001740
7841 0 7002               MOX      PAT01&2                           8C001750
7842 0 6100          PAT01 LDX   1  0           SET INDEXES FOR 8CP  8C001760
7843 0 62FF               LDX   2  -1                                8C001770
7844 0 C059               LO       LLIM1      SET UP TO START AT    8C001780
7845 0 D05D               STO      PLOC       * 1ST LOWER LIMIT     8C001790
7846 0 404C               8SI      X3CRS      RESET ADDR CTRL       8C001800
7847 0 6780 78A0          LOX   I3 LOWRL      SET UP LOOP CONTROL   8C001810
7849 0 4016               BSI      8CP        SET CORES             8C001820
784A 0 C054               LD       LLIM2      SET UP TO START AT    8C001830
7848 0 0057               STO      PLOC       * 2ND LOWER LIMIT     8C001840
784C 0 4046               BSI      X3CRS      RESET AOOR CTRL       8C001850
7840 0 6780 78A8          LDX   I3 UPERL      SET UP LDOP CONTROL   8C001860
784F 0 4010               8SI      8CP        SET CORES             8C001870
                     *                                               8C001880
                     *                      SET SPV 8ITS             8C001890
                     *                                               8C001900
7850 0 6580 789E     STSPV LDX   I1 LLIM1     SET UP TO START AT    8C001910
                     *                      * 1ST LOWER LIMIT     8C001920
7852 0 6780 78A0          LDX   I3 LOWRL      SET UP LOOP CONTROL   8C001930
7854 0 4020               8SI      SPV        SET SPV 8IT SU8RT     8C001940
7855 0 403D               8SI      X3CRS      RESET AOOR CTRL       8C001950
7856 0 6580 789F          LDX   I1 LLIM2      SET UP TO START AT    8C001960
                     *                      * 2ND LOWER LIMIT     8C001970
7858 0 6780 78A8          LDX   I3 UPERL      SET UP LOOP CONTROL   8C001980
785A 0 401A               8SI      SPV        SET SPV 8IT SU8RT     8C001990
7858 0 4037               BSI      X3CRS      RESET ADDR CTRL       8C002000
                     *                                               8C002010
                     *                      LOAD PATTERN NUM8ER WHICH 8C002020
                     *                      HAS BEEN SET UP ANO WAIT 8C002030
                     *                      TO ALLOW CE TO MANUALLY  8C002040
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                     *                      ADJUST V REF             8C002050
                     *                                               8C002060
785C 0 C045          DONE  LD       PATND       SET UP PATTERN ND.   8C002070
785D 0 3002          WAIT2 WAIT     2           END OF PROGRAM       8C002080
785E 0 4C00 7801           8SC  L   START                            8C002090
                     *                                               8C002100
                     *                                               8C002110
                     *                      8CP ANO COMPL. BCP  SU8RT 8C002120
                     *                                               8C002130
7860 0 0000          8CP   DC       0                                8C002140
7861 0 6847                STX    3 X3HLO      SAVE X3 DATA          8C002150
7862 0 C040                LD       PLOC       EXCUSIVE OR BITS 7    8C002160
7863 0 1806                SRA      6          * AND 9               8C002170
7864 0 D040                STO      TEMP                             8C002180
7865 0 1802                SRA      2                                8C002190
7866 0 F03E                EDR      TEMP                             8C002200
7867 0 4C04 786C           8SC  L   OOD,E                            8C002210
7869 0 6D80 78A3           STX    I1 PLDC                           8C002220
7868 0 7002                MOX      CDO&2                            8C002230
786C 0 6E80 78A3     OOO   STX    I2 PLOC                           8C002240
786E 0 7401 78A3           MDX  L   PLOC,1      INCREMENT AOORESS     8C002250
7870 0 1000                SLA      0                                8C002260
7871 0 4015                8SI      CKX3X       8R TD CK X3 CTRL     8C002270
7872 0 70EF                MDX      8CP&2       REPEAT               8C002280
7873 0 4C80 7860           8SC  I   8CP         EXIT                 8C002290
                     *                                               8C002300
                     *                                               8C002310
                     *                      SET SPV SU8RT            8C002320
                     *                                               8C002330
7875 0 0000          SPV   DC       0                                8C002340
7876 0 6832                STX    3 X3HLD      SAVE X3 DATA          8C002350
7877 0 6933                STX    1 PGMX       SAVE X1 VALUE         8C002351
7878 0 C032                LO       PGMX       GET X1 OATA           8C002352
7879 0 F02D                EOR      ULIM1      CK FOR START OF PGM   8C002353
787A 0 4C18 7883           8SC  L   SPVX,&-     8R IF START FO PGM   8C002354
787C 0 C100                LD     1 0          SET ADDR CTRL         8C002360
7870 0 4C18 7881           8SC  L   SPV8,&-     BRANCH IF CONTAINS 0  8C002370
787F 0 2041 0000           STS    L1 0,/41      SET SPV               8C002380
7881 0 7101          SPVB  MOX    1 1          INCREMENT AOORESS     8C002390
7882 0 1000                SLA      0                                8C002400
7883 0 4003          SPVX  BSI      CKX3X       8R TD CK X3 CTRL     8C002410
7884 0 70F2                MDX      SPV&2       REPEAT               8C002420
7885 0 4C80 7875           8SC  I   SPV         EXIT                 8C002430
                     *                                               8C002440
                     *                                               8C002450
                     *                                               8C002460
7887 0 0000          CKX3X DC       0           ENTRY                8C002470
                     *                                               8C002480
7888 0 C021                LD       X3CTL                            8C002490
7889 0 8017                A        ONE         ADO TO AOV AOOR      8C002500
788A 0 D01F                STO      X3CTL                            8C002510
7888 0 F010                EOR      X3HLD       TEST AGAINST CTRL MAX 8C002520
788C 0 4CA0 7887           BSC  I   CKX3X,Z     8R IF NOT ZERO       8C002530
788E 0 7401 7887           MOX  L   CKX3X,1     AOV FOR EXIT RETURN  8C002540
7890 0 1000                NOP      0           SAFTY NOP            8C002550
7891 0 4C80 7887           BSC  I   CKX3X       RETURN TO EXIT RTN CTRL 8C002560
                     *                                               8C002570
                     *                      RESET AODR CTRL          8C002580
                     *                                               8C002590
7893 0 0000          X3CRS DC       0           ENTRY                8C002600
7894 0 1010                SLA      16          CLR A REG            8C002610
7895 0 D014                STO      X3CTL       RESET ADOR CTRL CTR  8C002620
7896 0 4C80 7893           8SC  I   X3CRS       RETURN EXIT          8C002630
                     *                                               8C002640
                     *                                               8C002650
7898   0000                8SS  E   0                                8C002660
7898 0 4C00 7811     LINK  8SC  L   SETLK       RESTART LINKAGE ROUTINE 8C002670
789A 0 0000          RDSWS DC       0           SENSE INTO A REG     8C002680
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7898 0 0760            DC    /0760    SENSE/PROG SWS          8C002690
789C 0 6000  K6000     DC    /6000    24K CONSTANT            8C002700
789D 0 0800  K0800     DC    /0800    CONSTANT                8C002710
789E 0 0002  LLIM1     DC    /0002    1ST LDWER LIMIT CTRL    8C002720
789F 0 78AC  LLIM2     DC    FNISH    2ND LOWER LIMIT CTRL    8C002730
78A0 0 0000  LOWRL     DC    0        LD CDRE 8LDCK LOOP CTRL 8C002740
78A1 0 0001  ONE       DC    1        CDNSTANT 1              8C002750
78A2 0 0000  PATNO     OC    0        PATTERN NUM8ER          8C002760
78A3 0 0000  PLOC      DC    0        PRESENT LOC             8C002770
78A4 0 0000  SIZE      OC    0        CORE SIZE & UPLIM2      8C002780
78A5 0 0000  TEMP      OC    0                                8C002790
78A6 C 0002  TWD       DC    2        CDNSTANT 2              8C002800
78A7 0 7801  ULIM1     DC    START    1ST UPPER LIMIT         8C002810
78A8 0 0000  UPERL     DC    0        HI CDRE 8LOCK LOOP CTRL 8C002820
78A9 C 0000  X3HLO     OC    0        X3 DATA HDLOER          8C002830
78AA 0 0000  X3CTL     OC    0        CTRL AOOR UPLIM         8C002840
78A8 0 0000  PGMX      DC    0        PGM SPV CK WORK AREA    8C002850
78AC 0 0000  FNISH     DC    0        LAST LDC DF PRDG        8C002860
78AE   7801            END   START                            8C002870
  NO STATEMENTS FLAGGED IN THE A8OVE ASSEM8LY
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8CP    7860  7849 784F 7872 7873
CKX3X  7887  7871 7883 788C 788E 7891
CSP    7819  7818 7818 781E 7821
ODNE   785C
FNISH  78AC  789F
K0800  789D
K6000  789C
LINK   7898  7811
LLIM1  789E  7828 7844 7850
LLIM2  789F  7823 7825 782E 784A 7856
LDWRL  78A0  782C 7847 7852
ODD    786C  7867 7868
DNE    78A1  781C 782F 7889
PATNO  78A2  7833 7839 783C 785C
PAT01  7842  783D 7841
PAT02  783F
PGMX   78A8  7877 7878
PIVOT  783C  7837
PLDC   78A3  7845 7848 7862 7869 786C 786E
RDSWS  789A  7831
READ   7831  7838
SETLK  7811  7898
SIZE   78A4  780F 781F 7824 7828 782D
SPV    7875  7854 785A 7884 7885
SPV8   7881  787D
SPVX   7883  787A
START  7801  785E 78A7 78AE
STGCK  7809  7802
STGLP  7804  7808
STSPV  7850
TEMP   78A5  7864 7866
TWO    78A6  7836
ULIM1  78A7  7826 7829 782A 7879
UPERL  78A8  7830 784D 7858
WAIT1  783A  3001 7834
WAIT2  785D  3002
X3CRS  7893  7846 784C 7855 7858 7896
X3CTL  78AA  7816 7888 788A 7895
X3HLD  78A9  7861 7876 7888
END OF ASSEMBLY
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---------- LAST PAGE ----------

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                     ABS                                          8C100020
3001                 ORG      /3001                               8C100030
                *                                                 8C100040
                *           1800 CORE ADJUSTMENT PROGRAM          8C100050
                *                                                 8C100060
                *                                                 8C100070
                ****************  NOTES  ******************       8C100080
                *                                                 8C100090
                *                                                 8C100100
                *             OPERATOR SHOULD CLEAR               8C100110
                *             SPV BITS EACH TIME BEFORE           8C100120
                *             THE CORE ADJUSTMENT PROG            8C100130
                *             IS LOADED                           8C100140
                *                                                 8C100150
                *             SET CK STOP SW TO ON.               8C100160
                *                                                 8C100170
                *             SET WRITE STORAGE PROTECT           8C100180
                *                SWITCH TO YES FOR                8C100190
                *                EXECUTING PROGRAM AND            8C100200
                *                TO NO WHILE ADJUSTING            8C100210
                *                V REF.                           8C100220
                *                                                 8C100230
                *             SENSE/PROGRAM SW SETTINGS           8C100240
                *                                                 8C100250
                *                01  SET UP BEST CASE             8C100260
                *                      PATTERN                    8C100270
                *                                                 8C100280
                *                02  SET UP COMPLEMENT            8C100290
                *                      BEST CASE PATTERN          8C100300
                *                                                 8C100310
                *                                                 8C100320
                *                                                 8C100330
                *********************************************     8C100340
                *                                                 8C100350
                ****************  WAITS  ******************        8C100360
                *                                                 8C100370
3001 0 0167          DC       WAIT1&1    SELECT PATTERN           8C100380
                *                                                 8C100390
                *                        SET PATTERN NUMBER       8C100400
                *                        OF DESIRED PATTERN       8C100410
                *                        IN SENSE/PROG SWS        8C100420
                *                                                 8C100430
                *                        DEPRESS RESET BUTTON     8C100440
                *                                                 8C100450
                *                        DEPRESS START BUTTON     8C100460
                *                                                 8C100470
                *                        NOTE-- ACCUMULATOR       8C100480
                *                        SHOWS THE SETTING OF     8C100490
                *                        THE PRESENT SENSE/       8C100500
                *                        PROGRAM SWITCHES         8C100510
                *                                                 8C100520
                *                                                 8C100530
3002 0 018A          DC       WAIT2&1    PROGRAM COMPLETED        8C100540
                *                                                 8C100550
                *                        ACCUMULATOR SHOWS        8C100560
                *                        PATTERN NUMBER OF        8C100570
                *                        PATTERN THAT WAS SET     8C100580
                *                        UP IN CORE.              8C100590
                *                                                 8C100600
                *                        ADJUST V REF WHILE       8C100610
                *                        CYCLING IN THE           8C100620
                *                        AUTOMATIC DISPLAY        8C100630
                *                        MODE.                    8C100640
                *                                                 8C100650
                *                        TO SET UP NEXT           8C100660
                *                        PATTERN AFTER V REF      8C100670
                *                        HAS BEEN ADJUSTED--      8C100680
                *                                                 8C100690
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                 *                       PLACE NEXT PATTERN       8C100700
                 *                       NUMBER IN THE            8C100710
                 *                       SENSE/PROGRAM SWS        8C100720
                 *                                                8C100730
                 *                       TURN MODE SW TO          8C100740
                 *                       RUN  ** PLUS **          8C100750
                 *                       TURN ON WR SPV SW        8C100755
                 *                                                8C100760
                 *                       DEPRESS RESET            8C100770
                 *                       PUSHBUTTON               8C100780
                 *                                                8C100790
                 *                       DEPRESS START            8C100800
                 *                       PUSHBUTTON               8C100810
                 *                                                8C100820
                 *                                                8C100830
                 ***********************************************  8C100840
                 *                                                8C100850
                 *                                                8C100860
012C                     ORG     /012C                            8C100870
012C 0 C100              DC      /C100       PID                  8C100880
                 ************************************************ 8C100890
                 *                                              * 8C100900
                 *              CORE SIZE DETERMINER            * 8C100910
                 *                                              * 8C100920
                 ************************************************ 8C100930
012D 0 6100      START LDX    1 0        SET CTRL INDEX 1         8C100940
012E 0 C007            LD       STGCK&1  GET CONSTANT FFFF & SET  8C100950
012F 0 D1FF            STO    1 -1       IN MAXIMUM ADDRESS       8C100960
                 *                                                8C100970
0130 0 7500 1000 STGLP MDX   L1 /1000    ADVANCE CONTROL INDEX    8C100980
0132 0 1000            NOP      0        SAFETY NOP FOR 32K CORE  8C100990
0133 0 1010            SLA      16       CLEAR ACCUMULATOR AND SET 8C101000
0134 0 D1FF            STO    1 -1       IN 4K CORE BLOCK MAX ADDR 8C101010
                 *                                                8C101020
0135 0 C400 FFFF STGCK LD     L /FFFF    GET MAX CORE ADDRESS DATA 8C101030
0137 0 4C20 0130       BSC    L STGLP,Z  CHECK IT FOR ZERO        8C101040
                 *                       BRANCH LOOP IF NOT MAX   8C101050
                 *                                                8C101060
0139 0 71FF            MDX    1 -1       DECREMENT X1 TO ACTUAL   8C101070
                 *                       MAXIMUM ADDRESS THIS CPU 8C101080
                 *                                                8C101090
013A 0 1000            NOP      0        SAFETY NOP FOR 32K CORE  8C101100
013B 0 6D00 01D0       STX   L1 SIZE     SET PROPER LIMIT         8C101110
                 *                                                8C101120
                 *                                                8C101130
                 *                 SETUP RESTART LINKAGE          8C101140
                 *                                                8C101150
                 *                                                8C101160
013D 0 CC00 01C4 SETLK LDD    L LINK     LOAD RESTART ADDR        8C101170
013F 0 DC00 0000       STD    L 0        * WITHOUT CORE SIZE CK   8C101180
                 *                                                8C101190
0141 0 1010            SLA      16       CLEAR A REG              8C101200
0142 0 D400 01D6       STD    L X3CTL    RESET CTRLS              8C101210
0144 0 D001            STO      CSP&1    RESET CTRLS              8C101220
                 *                                                8C101230
0145 0 2C40 0000 CSP   STS    L 0,/40    CLEAR ALL SPV BITS       8C101240
0147 0 C0FE            LD       CSP&1    GET CLEAR ADDR           8C101250
0148 0 84C0 01CD       A      L ONE      ADV ADDR PLUS ONE        8C101260
014A 0 D0FB            STO      CSP&1    SAVE NEW ADDR            8C101270
014B 0 F400 01D0       EOR    L SIZE     CK FOR ALL OF CORE       8C101280
014D 0 4C20 0145       BSC    L CSP,Z    BR LOOP                  8C101290
                 *                                                8C101300
                 *                 ADJUST CORE SIZE AND           8C101310
                 *                 * CONSTANTS                    8C101320
                 *                                                8C101330
014F 0 C07B            LD       LLIM2    ADJUST CONSTANT          8C101340
0150 0 E07F            AND      SIZE                              8C101350
0151 0 D079            STO      LLIM2    SET LO LIMIT 2           8C101360
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0152 0 C400 01D3          IO   L  ULIM1                              8C101370
0154 0 E078               ANO      SIZE                             8C101380
0155 0 D07D               STO      ULIM1      SET UP LIMIT 1        8C101390
                     *                    FIND LOOP CONTROLS       8C101400
0156 0 C07C               LO       ULIM1                            8C101410
0157 0 9072               S        LLIM1                            8C101420
0158 0 D073               STO      LOWRL      SET LO CTRL LIMIT     8C101430
0159 0 C076               LO       SIZE                             8C101440
015A 0 9072               S        LLIM2                            8C101450
015B 0 9071               S        ONE                              8C101460
015C 0 D077               STO      UPERL      UPPER LIMIT CONTROL   8C101470
                     *                    READ SENSE/PROG SWITCHES 8C101480
015D 0 0868          READ XIO      RDSWS                            8C101490
                     *                                             8C101500
                     *                    CK SW VALIDITY           8C101510
                     *                                             8C101520
015E 0 1808               SRA      8                                8C101530
015F 0 D06E               STO      PATNO      SAVE PATTERN NUMBER   8C101540
0160 0 4C18 0166          BSC  L   WAIT1,&-                         8C101550
0162 0 906F               S        TWO                              8C101560
0163 0 4C08 0168          BSC  L   PIVOT,&                          8C101570
0165 0 C068               LO       PATNO                            8C101580
0166 0 3001          WAIT1 WAIT     1          SELECT SENSE/PROGRAM  8C101590
                     *                       * SW OPTIONS AND      8C101600
                     *                       * DEPRESS RESET AND   8C101610
                     *                       * START PUSHBUTTONS   8C101620
                     *                                             8C101630
0167 0 70F5               MDX      READ                             8C101640
                     *                                             8C101650
                     *                    PIVOT ON SELECTED PATTERN 8C101660
                     *                                             8C101670
0168 0 C065          PIVOT LO       PATNO                          8C101680
0169 0 4C04 016E          BSC  L   PAT01,E                          8C101690
                     *                                             8C101700
                     *                    SET UP BCP OR COMPL. BCP 8C101710
                     *                                             8C101720
0168 0 61FF          PAT02 LDX      1 -1       SET FOR COMPL BCP     8C101730
016C 0 6200                LDX      2 0                              8C101740
016D 0 7002                MDX      PAT01&2                          8C101750
016E 0 6100          PAT01 LOX      1 0        SET INDEXES FOR BCP   8C101760
016F 0 62FF                LOX      2 -1                             8C101770
0170 0 C059                LO       LLIM1      SET UP TO START AT    8C101780
0171 0 D05D                STO      PLOC       * 1ST LOWER LIMIT     8C101790
0172 0 404C                BSI      X3CRS      RESET ADDR CTRL       8C101800
0173 0 6780 01CC           LOX   I3 LOWRL      SET UP LOOP CONTROL   8C101810
0175 0 4016                BSI      BCP        SET CORES             8C101820
0176 0 C054                LD       LLIM2      SET UP TO START AT    8C101830
0177 0 D057                STO      PLOC       * 2ND LOWER LIMIT     8C101840
0178 0 4046                BSI      X3CRS      RESET ADDR CTRL       8C101850
0179 0 6780 0104           LOX   I3 UPERL      SET UP LOOP CONTROL   8C101860
017B 0 4010                BSI      BCP        SET CORES             8C101870
                     *                                             8C101880
                     *                    SET SPV BITS             8C101890
                     *                                             8C101900
017C 0 6580 01CA     STSPV LDX      I1 LLIM1   SET UP TO START AT    8C101910
                     *                       * 2ND LOWER LIMIT     8C101920
017E 0 6780 01CC           LOX   I3 LOWRL      SET UP LOOP CONTROL   8C101930
0180 0 4020                BSI      SPV        SET SPV BIT SUBRT     8C101940
0181 0 403D                BSI      X3CRS      RESET ADDR CTRL       8C101950
0182 0 6580 01C8           LDX   I1-LLIM2      SET UP TO START AT    8C101960
                     *                       * 2ND LOWER LIMIT     8C101970
0184 0 6780 01D4           LDX   I3 UPERL      SET UP LOOP CONTROL   8C101980
0186 0 401A                BSI      SPV        SET SPV BIT CTRL      8C101990
0187 0 4037                BSI      X3CRS      RESET ADDR CTRL       8C102000
                     *                                             8C102010
                     *                    LOAD PATTERN NUMBER WHICH 8C102020
                     *                    HAS BEEN SET UP AND WAIT  8C102030
                     *                    TO ALLOW CE TO MANUALLY   8C102040
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                     *                    ADJUST V REF             8C102050
                     *                                             8C102060
0188 0 C045          DONE LO        PATNO      SET UP PATTERN NO.    8C102070
0189 0 3002          WAIT2 WAIT     2          END OF PROGRAM        8C102080
018A 0 4C00 012D           BSC  L   START                            8C102090
                     *                                             8C102100
                     *                                             8C102110
                     *                    BCP AND COMPL. BCP  SUBRT 8C102120
                     *                                             8C102130
018C 0 0000          BCP   DC       0                              8C102140
018D 0 6847                STX    3 X3HLO      SAVE X3 DATA          8C102150
018E 0 C040                LO       PLOC       EXCLUSIVE OR BITS 7   8C102160
018F 0 1806                SRA      6          * AND 9               8C102170
0190 0 D040                STO      TEMP                             8C102180
0191 0 1802                SRA      2                                8C102190
0192 0 F03E                EOR      TEMP                             8C102200
0193 0 4C04 0198           BSC  L   ODD,E                            8C102210
0195 0 6D80 01CF           STX    11 PLOC                           8C102220
0197 0 7002                MDX      ODD&2                            8C102230
0198 0 6E80 01CF     ODD   STX    I2 PLOC                           8C102240
019A 0 7401 01CF           MDX  L   PLOC,1       INCREMENT ADDRESS    8C102250
019C 0 1000                SLA      0                                8C102260
019D 0 4015                BSI      CKX3X      BR TO CK X3 CTRL      8C102270
019E 0 70EF                MDX      BCP&2      REPEAT                8C102280
019F 0 4C80 018C           BSC  I   BCP        EXIT                  8C102290
                     *                                             8C102300
                     *                                             8C102310
                     *                    SET SPV SUBRT            8C102320
                     *                                             8C102330
01A1 0 0000          SPV   DC       0                              8C102340
01A2 0 6832                STX    3 X3HLO      SAVE X3 DATA          8C102350
01A3 0 6933                STX    1 PGMX       SAVE X1 VALUE         8C102351
01A4 0 C932                LO       PGMX       GET X1 DATA           8C102352
01A5 0 F02D                EOR      ULIM1      CK FOR START OF PGM   8C102353
01A6 0 4C18 01AF           BSC  L   SPVX,&-    BR IF START OF PGM    8C102354
01A8 0 C100                LD     1 0          SET ADDR CTRL         8C102360
01A9 0 4C18 01AD           BSC  L   SPVB,&-    BRANCH IF CONTAINS 0  8C102370
01AB 0 2D41 0000           STS    L1 0,/41     SET SPV               8C102380
01AD 0 7101          SPVB  MDX    1 1          INCREMENT ADDRESS     8C102390
01AE 0 1000                SLA      0                                8C102400
01AF 0 4003          SPVX  BSI      CKX3X      BR TO CK X3 CTRL      8C102410
0180 0 70F2                MDX      SPV&2      REPEAT                8C102420
0181 0 4C80 01A1           BSC  I   SPV        EXIT                  8C102430
                     *                                             8C102440
                     *                                             8C102450
                     *                                             8C102460
0183 0 0000          CKX3X DC       0          ENTRY                 8C102470
                     *                                             8C102480
0184 0 C021                LD       X3CTL                            8C102490
0185 0 8017                A        ONE        ADD TO ADV ADDR       8C102500
0186 0 D01F                STO      X3CTL                            8C102510
0187 0 F010                EOR      X3HLO      TEST AGAINST CTRL MAX 8C102520
0188 0 4CA0 0183           BSC  I   CKX3X,Z    BR IF NOT ZERO        8C102530
018A 0 7401 0183           MDX  L   CKX3X,1    ADV FOR EXIT RETURN   8C102540
018C 0 1000                NOP      0          SAFTY NOP             8C102550
018D 0 4C80 0183           BSC  I   CKX3X      RETURN TO EXIT RTN CTRL 8C102560
                     *                                             8C102570
                     *                    RESET ADDR CTRL          8C102580
                     *                                             8C102590
018F 0 0000          X3CRS DC       0          ENTRY                 8C102600
01C0 0 1010                SLA      16         CLR A REG             8C102610
01C1 0 D014                STO      X3CTL      RESET ADDR CTRL CTR   8C102620
01C2 0 4C80 018F           BSC  I   X3CRS      RETURN EXIT           8C102630
                     *                                             8C102640
                     *                                             8C102650
01C4   0000                BSS  E   0                              8C102660
01C4 0 4C00 013D     LINK  BSC  L   SETLK      RESTART LINKAGE ROUTINE 8C102670
01C6 0 0000          ROSWS DC       0          SENSE INTO A REG      8C102680
```

```
01C7 0 D76D              DC      /D760     SENSE/PROG SWS            8C1D2690
01C8 0 6DDD        K6DDO DC      /6DDD     24K CONSTANT              8C1D27DD
01C9 0 0800        K08DD DC      /D800     CONSTANT                  8C1D271D
01CA D DDD2        LLIM1 DC      /D0D2     1ST LOWER LIMIT CTRL      8C10272D
01CB D 01D8        LLIM2 OC      FNISH     2ND LOWER LIMIT CTRL      8C10273D
01CC 0 0DDD        LOWRL DC      D         LO CORE 8LOCK LOOP CTRL   8C1D274D
01C0 0 0D01        ONE   OC      1         CONSTANT 1                8C10275D
01CE D 0DDD        PATNO DC      D         PATTERN NUMBER            8C1D276D
01CF D DDDD        PLOC  DC      D         PRESENT LOC               8C10277D
01D0 D 00DD        SIZE  OC      D         CORE SIZE & UPLIM2        8C1D278D
01D1 D 0D0D        TEMP  DC      0                                   8C1D279D
01D2 D DDD2        TWO   OC      2         CONSTANT 2                8C1D28DD
01D3 D DI2D        ULIM1 DC      START     1ST UPPER LIMIT           8C102810
01D4 0 0DCD        UPERL OC      0         HI CORE 8LOCK LOOP CTRL   8C1D2820
01D5 D D0D0        X3HLD DC      D         X3 DATA HOLDER            8C102830
01D6 D DDD0        X3CTL DC      0         CTRL ADDR UPLIM           8C1D284D
01D7 0 DD00        PGMX  DC      D         PGM SPV CK WORK AREA      8C1D2850
01D8 0 DDDD        FNISH DC      D         LAST LOC OF PROG          8C10286D
01DA   012D              END     START                               8C1D287D
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
BCP     D18C  0175 017B 019E D19F
CKX3X   0183  D19D D1AF 0188 D1BA D1BD
CSP     0145  D144 0147 014A D14D
DONE    0188
FNISH   0108  D1C8
KD8D0   D1C9
K6000   01C8
LINK    D1C4  D13D
LLIM1   01CA  D157 D17D D17C
LLIM2   D1CB  014F D151 D15A 0176 D182
LOWRL   D1CC  D158 0173 D17E
ODD     0198  D193 D197
ONE     D1CD  0148 D15B 0185
PATNO   D1CE  D15F D165 D168 0188
PAT01   D16E  D169 016D
PAT02   016B
PGMX    D1D7  D1A3 D1A4
PIVOT   D168  D163
PLOC    D1CF  D171 0177 D18E D195 D198 D19A
RDSWS   01C6  D150
READ    D15D  D167
SETLK   013D  01C4
SIZE    01DD  013B D14B 015D 0154 D159
SPV     D1A1  D18D D186 D1BD D1B1
SPVB    D1AD  D1A9
SPVX    01AF  D1A6
START   012D  018A D1D3 D1DA
STGCK   D135  012E
STGLP   D130  D137
STSPV   D17C
TEMP    D1D1  D190 0192
TWO     01D2  0162
ULIM1   D1D3  D152 0155 0156 01A5
UPERL   01D4  D15C D179 D184
WAIT1   D166  D16D 3DD1
WAIT2   0189  3DD2
X3CRS   01BF  D172 C178 D181 D187 D1C2
X3CTL   01D6  0142 D184 0186 01C1
X3HLO   D1D5  0180 D1A2 01B7
END OF ASSEMBLY
```

---------- LAST PAGE ----------

TABLE OF CONTENTS

1. PURPOSE

THE MAGNETIC TAPE CRC FUNCTION TEST IS DESIGNED TO CHECK THE TAPE ERROR COPRECTION CIRCUITRY FOR PROPER OPERATION.

THE PROGRAM IS ABLE TO TEST,

1. SYSTEMS WITH ONE OR TWO TAPE DRIVES.
2. DRIVES WITH 9 TRACK READ-WRITE HEADS.
3. MODELS 1, 2 OR 3 WITH 2 OR 4 MICROSECOND STORAGE.

IF THE SYSTEM HAS TWO TAPE DRIVES WITH 9 TRACK HEADS, BOTH DRIVES MAY BE SEQUENTIALLY TESTED IN ONE CONTINUOUS RUN OF THE PROGRAM.

2. PREREQUISITES

THIS PROGRAM ASSUMES THAT THE 2400 MAGNETIC TAPE FUNCTION TEST RUNS AND NO TAPE CONTROL ERRORS EXIST. EQUIPMENT REQUIRED CONSISTS OF,

1. 1442 CARD READ/PUNCH OR 1054 PAPER TAPE READER.
2. 1053 OR 1816 TYPEWRITER OR 1443 PRINTER.
3. 1800 PROCESSOR CONTROLLER.
4. ONE OR TWO 2400 SERIES MAGNETIC TAPE DRIVES WITH 9 TRACK HEADS.
5. THIS PROGRAM REQUIRES THE RELOCATABLE DIAGNOSTIC LOADER FOR LOADING.

3. USE PROCEDURE

3.1 PROGRAM LOADING

PULL CARD 1C09 IN EACH TAPE DRIVE TO BE TESTED.

3.1.1 ON TAPE DRIVE (S) TO BE TESTED,

1. LOAD TAPE REEL.
2. DEPRESS LOAD-REWIND KEY.
3. DEPRESS START KEY.
   AFTER TAPE REWINDS TO LOAD POINT, DRIVE (S) SHOULD BECOME READY.

3.1.2 REFER TO RELOCATABLE DIAGNOSTIC LOADER DOCUMENTATION FOR LOADING PROCEDURE.

3.1.3 AFTER LOADING THE PROGRAM WILL HALT AT WAIT 2.

IF OPTIONS ARE DESIRED, GO TO 3.2.2.
IF NO OPTIONS ARE DESIRED, GO TO 3.2.1.

3.2 OPERATION

3.2.1 IF NO OPTIONS ARE SET THE PROGRAM ASSUMES,

1. ALL 9 TRACK DRIVES ON THE SYSTEM ARE TO BE RUN.
2. OUTPUT DEVICE IS TO BE 1053 OR 1816 TYPEWRITER.
3. ALL ERRORS ARE TO BE PRINTED.

TO EXECUTE THE PROGRAM-DEPRESS THE START BUTTON.

3.2.2 OPERATING OPTIONS

IF OPTIONS ARE DESIRED, SET SWITCHES FROM TABLES D AND 1 AND DEPRESS THE START BUTTON.

TABLE D-CONTROL SWITCHES

1. SWITCHES MAY BE SET PRIOR TO PROGRAM LOADING OR AT WAIT 2.
2. SWITCHES D AND 1 MAY BE CHANGED ONLY BY A RESET-START OPERATION, BUT ALL OTHER SWITCHES MAY BE CHANGED AT ANYTIME.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. 1	HALT BEFORE ROUTINE
. . . . . 1 .	HALT ON ERROR
. . . . . 1 . . .	BYPASS PRINTOUTS
. . . . . 1	LOOP ON ERROR
. . . . . 1	LOOP PROGRAM
. . . . . 1	USE 1443 AS OUTPUT DEVICE
. . . . . 1	PRINT ONLY FIRST BAD DATA WORD (THIS IS AUTOMATIC IF SW 12 IS ON)
. 1	DO NOT RUN DRIVE 1
1	DO NOT RUN DRIVE 0

TABLE 1-LOOP ROUTINE

1. THESE SWITCHES MAY BE CHANGED AT ANYTIME.
2. IF ZERO IS ENTERED, THE PROGRAM WILL NOT LOOP ANY ROUTINE, BUT WILL RUN ALL ROUTINES IN SEQUENCE.
3. IF IT IS DESIRED TO START ON A ROUTINE OTHER THAN ROUTINE 1, AND CONTINUE THE PROGRAM FROM THAT POINT.
   A. SET STARTING ROUTINE PER TABLE 1.
   B. START PROGRAM.
   C. WHILE PROGRAM IS RUNNING SELECT ROUTINE 0. THE PROGRAM WILL COMPLETE THE SELECTED ROUTINE AND THEN RUN THE REMAINING ROUTINES IN THEIR NORMAL SEQUENCE.

PROGRAM/SENSE SWITCHES	DESCRIPTION
0 1 2 3 4 5 6 7	
0 0 0 X X X X	ROUTINE TO BE LOOPED (ENTER 0 THRUGH 15 HEXADECIMAL)

3.3 TERMINATING PROCEDURE

1. THE PROGRAM WILL TERMINATE WHEN ALL DRIVES SELECTED HAVE BEEN TESTED, UNLESS LOOP PROGRAM SWITCH IS ON.
2. THE PROGRAM WILL TERMINATE IF CERTAIN ERRORS OCCUR. (SEE SECTION 4-PRINTOUTS)
3. THE PROGRAM CAN BE MANUALLY TERMINATED AT ANY TIME BY DEPRESSING THE STOP BUTTON.

3.4 RESTART PROCEDURE

PRESS THE STOP, RESET AND START KEYS. THE PROGRAM SHOULD GO TO WAIT 2. IF THIS DOES NOT OCCUR THE PROGRAM MUST BE RELOADED.

3.5 PROGRAM HALTS

PROGRAM WAITS ARE USED IN THIS PROGRAM, AND ARE IDENTIFIED BY REFERENCING THE B REGISTER AND I REGISTER.

A PROGRAM WAIT IS OF THE FORM,

30XX (B REGISTER)

A DESCRIPTION OF THE INDIVIDUAL PROGRAM WAITS CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING. A TYPICAL WAIT DESCRIPTION FOLLOWS. IT IS INCLUDED TO SHOW THE FORMAT IN THE LISTING, AND IT IS NOT NECESSARILY A DESCRIPTION OF AN ACTUAL WAIT.

```
3001 0  01ED            OC      WAIT1+1
                  *
                  *             ONE OF THE METERED I/O UNITS FAILED
                  *             TO SEND A RESPONSE INTERRUPT TO THE
                  *             PROGRAM.  INDEX REGISTER 1 WILL
                  *             HAVE THE ADDRESS OF THE IOCC.  THE
                  *             AREA CODE WILL INDICATE THE I/O UNIT
                  *             NOT READY.  IF A 2401/02 DRIVE IS
                  *             NOT READY, PROGRAM WILL NOT STOP AT
                  *             WAIT 1.
```

B REG., (FIRST 4 DIGIT GROUP) CORRESPONDS TO B REG. READING.
I REG., (SECOND 4 DIGIT GROUP) CORRESPONDS TO I REG. READING.

4. PRINTOUTS

4.1 COMMAND MESSAGES

```
PIO  MIO  RID  RAD  UNIT
8000 C000 XXXX XXXX 000X
          DRIVE 0 IS SELECTED TO BE RUN BUT IS NOT READY.
          PROGRAM IS TERMINATED.

8000 C001 XXXX XXXX 000X
          DRIVE 1 IS SELECTED TO BE RUN BUT IS NOT READY.
          PROGRAM IS TERMINATED.

8000 C002 XXXX XXXX 000X
          ALL ROUTINES ARE COMPLETE ON THE DRIVE INDICATED.
```

4.2 INFORMATION MESSAGES

```
                                NUMBER OF
                                RETRYS
8000 A001 XXXX XXXX 000X XXXX
          RECOVERED WRITE ERROR.  A CORRECT WRITE WAS ACCOMPLISHED AFTER THE
          NUMBER OF RETRYS SHOWN.

8000 A002 XXXX XXXX 000X YYXX
          RECOVERED READ ERROR.  A CORRECT READ WAS ACCOMPLISHED AFTER THE
          NUMBER OF RETRYS SHOWN.  NUMBER RETRYS = YY TIMES 10 PLUS XX.
```

4.3 ERROR MESSAGES

```
                                     A    B    C    D
8000 E001 XXXX XXXX 000X XXXX XXXX XXXX XXXX
          DATA RECEIVED WAS NOT CORRECT

              A-EXPECTED DATA
              B-RECEIVED DATA
              C-WORD NUMBER IN ERROR
              D-TRACK BEING TESTED (FFFF=LOST CHARACTER RTN)

                        OSW
                        RECEIVED
8000 E002 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A WRITE.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

8000 E003 XXXX XXXX 000X XXXX
          COULD NOT WRITE CORRECTLY IN THREE TRIES.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

8000 E004 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A READ.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

8000 E005 XXXX XXXX 000X XXXX
          UNCORRECTABLE READ ERROR.

8000 E006 XXXX XXXX 000X XXXX
          OSW INCORRECT AFTER BACKSPACE.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

8000 E007 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A BACKSPACE.
          PROGRAM IS TERMINATED- SUGGEST RUNNING THE 2400 F. T.

8000 E008 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A REWIND.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.
```

5. COMMENTS

THIS PROGRAM CONSISTS OF A SUPERVISOR ROUTINE, A SERIES OF COMMON MAGNETIC TAPE ROUTINES AND A SERIES OF TESTS. SECTION 5.1 GIVES A DESCRIPTION OF EACH SUBROUTINE AND ITS CALLING SEQUENCE. SECTION 5.2 GIVES A DESCRIPTION OF EACH TEST ROUTINE.

5.1 COMMON SUBROUTINES

ALL ROUTINES ASSUME THAT INDEX REGISTER ONE CONTAINS THE NUMBER OF THE TAPE DRIVE PRESENTLY BEING RUN.

NAME CALL

BSP BSI L BSP
USE-BACKSPACE ONE RECORD ON THE DRIVE INDICATED BY INDEX REGISTER ONE.

DSL BSI L DSL
USE-RESET THE CRC CIRCUITRY BY SELECTING THE OTHER DRIVE.

HEXCV BSI L HEXCV
USE-CONVERT A BINARY WORD TO ITS 1443 CODE HEXADECIMAL EQUIVILENT.

INTR INTERRUPT ROUTINE
USE-SENSE ILSW AND DSW. SAVES THE DSW WORD RECEIVED AND RESETS THE INTERRUPT LEVEL.

LOGC BSI L LOGC
USE-THIS ROUTINE IS ENTERED BY ROUTINE LOGDO. THIS ROUTINE PRINTS THE MESSAGE SET UP BY ROUTINE LOGOO, ON THE 1053 OR 1816 TYPEWRITER.

LOGOO BSI L LOGCD
USE-THIS ROUTINE CONVERTS A 1443 CODED MESSAGE TO A 1053 OR 1816 TYPEWRITER CODED MESSAGE. THIS ROUTINE THEN CALLS ON ROUTINE LOGC.

PR43 BSI L PR43
USE-OUTPUT A MESSAGE ON THE 1443 PRINTER.

PRINT BSI L PRINT
DC MESSAGE ID
DC FORM NUMBER
MDX CONTINUE ADDRESS
MDX LOOP ON ERROR ADDRESS
USE-SET UP THE DESIRED MESSAGE FROM THE MESSAGE ID AND FORM NUMBER. THIS ROUTINE THEN CALLS ON ROUTINE HEXCV. UPON COMPLETION OF THE CONVERSION THIS ROUTINE CALLS ON EITHER LOGOD OR PR43 DEPENDING ON THE OUTPUT DEVICE SELECTED. AFTER PRINTING IS COMPLETE THE HALT ON ERROR SWITCH IS CHECKED. IF ON, THE ROUTINE WAITS. FINALLY THE LOOP ON ERROR SWITCH IS CHECKED AND THE ROUTINE EXITS TO THE PROPER MDX INSTRUCTION FOLLOWING THE CALL.

RD BSI L RD
USE-READ A RECORD FROM THE TAPE DRIVE SPECIFIED BY INDEX REGISTER ONE. IF NO UNEXPECTED ERRORS EXIST THE ROUTINE BACKSPACES AND REREADS WITH CORRECTION. IF UNEXPECTED ERRORS EXIST ON EITHER READ, THE ROUTINE WILL RETRY ONE HUNDRED TIMES BEFORE PRINTING UNCORRECTABLE ERROR.

RWD BSI L RWD
USE-REWIND THE DRIVE SPECIFIED BY INDEX REGISTER ONE.

SNDSW BSI L SNDSW
USE-SENSE THE DRIVE SPECIFIED BY INDEX REGISTER ONE. RETURN WITH THE DSW WORD RECEIVED IN THE A REGISTER.

SP7F BSI L SP7F
USE-SET THE FIRST EIGHT WORDS OF THE I/O AREA TO HEXADECIMAL 7F7F. ALSO SET WORDS TEN AND TWELVE TO HEXADECIMAL 0D7F AND ALL OTHER WORDS TO ZERO.

SP8F BSI L SP8F
USE-SET THE FIRST EIGHT WORDS IN THE I/O AREA TO HEXADECIMAL BF8F. ALSO SET WORDS TEN AND TWELVE TO HEXADECIMAL 0D8F AND ALL OTHER WORDS TO ZERO.

SPBD BSI L SP80
USE-SET THE FIRST EIGHT WORDS IN THE I/O AREA TO HEXADECIMAL 8080. ALSO SET WORDS TEN AND TWELVE TO HEXADECIMAL D080 AND ALL OTHER WORDS TO ZERO.

WRT BSI L WRT
USE-WRITE ONE RECORD ON THE TAPE DRIVE SPECIFIED BY INDEX REGISTER ONE. IF ERRORS EXIST THE ROUTINE WILL BACKSPACE, ERASE AND REWRITE. IF THE ERROR STILL EXISTS AFTER THREE RETRYS IT IS AS UNCORRECTABLE WRITE ERROR.

5.2 TEST ROUTINES

CRC CHECKING METHOD USED BY THIS PROGRAM

THE FOLLOWING METHOD IS USED FOR CHECKING THE ERROR CORRECTION CIRCUITRY IN THE MAGNETIC TAPE CONTROL UNIT. A RECORD IS SELECTED SUCH THAT ITS DATA CHARACTERS, ITS CRC CHARACTER AND ITS LRC CHARACTER DO NOT HAVE ANY BITS IN THE PARITY TRACK. FOR EXAMPLE, THE RECORD CONSISTING OF THE SIXTEEN CHARACTERS 7F, 7F, ETC. WOULD ON A NORMAL WRITE HAVE A CRC CHARACTER AND A LRC CHARACTER OF 7F. THIS RECORD BY CHANGING ONE OR MORE OF THE CHARACTERS TO HAVE BAD PARITY WHEN NO BY CHANGING ONE OR MORE OF THE CHARACTERS TO HAVE BAD PARITY WHEN NO BY CHANGING ONE OR MORE OF THE CHARACTERS TO HAVE BAD PARITY WHEN NO PARITY BIT IS WRITTEN. THE FOLLOWING CHARACTERS ARE SENT TO TAPE.

CHAR =	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25-625
TR			*														*	*	*		*	*	*		*	*
P		D	D	1	C	D	D	J	0	0	0	0	D	0	0	0	0	1	1	1	0	1	1	1	0	1	1
D		0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
4		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
6		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0
7		1	1	D	1	1	1	1	1	1	1	1	1	1	1	1	0	0	D	1	0	0	D	1	0	D

WHEN THIS RECORD IS RECEIVED FROM TAPE, THE PARITY BITS (*) WILL NOT BE READ. THIS WILL CAUSE CHARACTER 3 TO HAVE BAD PARITY ON TAPE. CHARACTERS 17, 18 AND 19 WILL APPEAR AS NO BITS ON TAPE AS WILL CHARACTERS 21, 22, 23 AND 25 THROUGH 625. WHEN READING THIS RECORD, CHARACTER POSITIONS 17, 18 AND 19 WILL FORM A GAP SO THAT CHARACTER 20 WILL APPEAR AS THE CRC CHARACTER. THE GAP CAUSED BY THE NO BITS IN CHARACTERS 21, 22 AND 23 WILL FORCE CHARACTER 24 TO BE TREATED AS A LRC CHARACTER. THE ABSENCE OF BITS IN CHARACTERS 25 THROUGH 625 FORM THE INTERRECORD GAP. WHEN CHARACTER 3 IS READ IT WILL ACTIVATE THE ERROR CORRECTION CIRCUITRY AND CALCULATE THE TRACK IN ERROR. THIS TRACK MUST BE TRACK 7 SINCE THE CRC CORRESPONDS TO CHARACTER 3 HAVING A BIT IN TRACK 7.

IN A SIMILAR MANNER, TRACK IN ERROR DETECTION CAN BE FORCED IN ALL TRACKS EXCEPT THE PARITY TRACK. IT MUST BE REALIZED THAT THIS PROGRAM CANNOT CHECK THE PARITY TRACK SINCE A CARD IS REMOVED WHICH WILL PREVENT THE PARITY BIT FROM BEING WRITTEN, TO ALLOW THIS METHOD OF CHECKING TO WORK.

DECIMAL ROUTINE NUMBER	HEXADECIMAL ROUTINE NUMBER	DESCRIPTION
1	1	SET THE I/O AREA TO 7F7F. THE ROUTINE THEN SETS A LOST BIT IN CHARACTER ONE, TRACK ONE AND WRITES THE DATA. THE RECORD IS THEN READ WITH CORRECTION AND THE DATA IS CHECKED TO SEE IF IT WAS CORRECTED. THE TEST IS THEN REPEATED UNTIL THE LOST BIT HAS BEEN PLACED IN EACH OF THE SIXTEEN CHARACTERS USED, IN TRACK ONE.
2	2	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK TWO.
3	3	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK THREE.
4	4	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK FOUR.
5	5	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK FIVE.
6	6	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK SIX.
7	7	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK SEVEN.
8	8	THE SAME TEST AS ROUTINE ONE EXCEPT THE PATTERN USED IS BFBF AND LOST BITS ARE PLACED IN TRACK ZERO.
9	9	THIS ROUTINE SETS A PATTERN OF BF7D IN THE EIGHT I/O WORDS. ALL BITS ON ONE TRACK ARE THEN SET TO ZERO INCLUDING THE CRC AND LRC CHARACTERS, THUS SIMULATING A DEAD TRACK. AFTER THE READ, THE DATA IS CHECKED TO SEE IF RECOVERY WAS CORRECT. THE TEST IS REPEATED UNTIL TRACKS 0 THROUGH 7 HAVE ALL BEEN TESTED AS DEAD TRACKS.
10	A	THIS ROUTINE SETS A PATTERN OF BF7D IN THE I/O AREA. ALTERNATE PICKED AND DROPPED BITS ARE THEN SET IN TRACK 0. AFTER THE READ WITH CORRECTION THE DATA IS CHECKED. THE ROUTINE THEN REPEATS UNTIL TRACKS 0 THROUGH 7 HAVE BEEN CHECKED.
11	B	THE I/O AREA IS SET TO THE PATTERN OF B080. ALL EVEN NUMBERED CHARACTERS EXCEPT CHARACTER 16 ARE THEN CLEARED TO SIMULATE LOST CHARACTERS. AFTER THE READ THE DATA IS CHECKED FOR PROPER RECOVERY.
12	C	THE I/O AREA IS SET TO THE PATTERN OF B080. THE ROUTINE THEN SETS A PICKED BIT IN CHARACTER ONE, TRACK ONE AND WRITES THE DATA. THE RECORD IS READ WITH CORRECTION AND THE DATA IS CHECKED TO SEE IF IT WAS CORRECTED. THE TEST IS THEN REPEATED UNTIL THE PICKED BIT HAS BEEN PLACED IN EACH OF THE SIXTEEN CHARACTERS USED, IN TRACK ONE.
13	D	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK TWO.
14	E	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK THREE.

15	F	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK FOUR.
16	10	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK FIVE.
17	11	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK SIX.
18	12	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK SEVEN.
19	13	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PATTERN USED IS 7F7F AND THE PICKED BITS ARE PLACED IN TRACK ZERO.
20	14	THIS ROUTINE SETS A PATTERN OF B0BD IN THE EIGHT I/O WORDS. ALL BITS OF ONE TRACK ARE SET TO ONE. AFTER THE READ THE DATA IS CHECKED TO SEE IF RECOVERY WAS MADE. THE TEST IS REPEATED UNTIL TRACK 1 THROUGH 7 HAVE BEEN TESTED.
21	15	THE SAME TEST AS ROUTINE TWENTY EXCEPT THE PATTERN IS 7F7F AND TRACK 0 IS TESTED.

6 APPENDIX

6.1 EDIT PROCEDURE

THE FOLLOWING PROCEDURE IS FOR CARD INPUT. FOR PAPER TAPE INPUT, REFER TO THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION.

THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

ALL FIELDS SHOWN MUST BE PUNCHED IN THE CARD.

		PROGRAM ID		CARD SEQUENCE NUMBER		NUMBER OF EDIT ENTRIES		ENTRY 1: MAGNETIC TAPE AREA CODE IN HEX EXAMPLE: AREA 14 = 7000	ENTRY 2: MAGNETIC TAPE ILSW BIT IN HEX EXAMPLE: BIT 0 = 8000, BIT 1 = 4000, BIT 15 = 0001	ENTRY 3: MAGNETIC TAPE INTRPT ADRS IN HEX EXAMPLE: LVL 7 = 0012, LVL 6 = 0011, LVL 5 = 0010	ENTRY 4: NUMBER OF TRACKS DRIVE 0, 0000 = 9 TRACK, 0001 = 7 TRACK	ENTRY 5: NUMBER OF TRACKS DRIVE 1, 0000 = 9 TRACK, 0001 = 7 TRACK, FFFF=NOT AVAILABLE
COLUMN	1	2	3	4 5	6	7 8	9 10	11 12	13 14	15 16 17 18 19	20 21	26 31 36 41 46 51 56 61 66 71
CARD 0	E	B	D	0	0	E	D	0	0	0 0 0 5		
CARD 1	E	B	D	0	0	F	F	F	F			

THE LAST CARD IS THE "END EDIT CARD". THE INFORMATION IN THIS CARD INCLUDES:

1. AN "E" IN COLUMN 1.
2. THE PID FOR THIS PROGRAM (COLUMNS 2 AND 3).
3. A TERMINATOR WORD OF "FFFF" (COLUMNS 7 - 10).

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
                          ABS                                          88000000
02BC                      ORG     /3001                                88D00010
                     *                                                 88000020
                     *            PROGRAMMED WAITS                     88D00030
                     *                                                 88000040
3001 0  0143              OC      WAIT1+1    LAST CARD DF THE          88D00050
                     *                       DECK IS NDT AN END        88D0006D
                     *                       DF EDIT CARD. ARRANGE     88D00070
                     *                       THE DECK AND RELOAD.      88D00080
                     *                                                 88D00090
3002 0  015A              DC      WAIT2+1    WAIT FOR SWITCHES TD      88D001D0
                     *                       8E SET UP. SET DESIRED    88D00110
                     *                       SWITCHES AND PRESS        88D00120
                     *                       START.                    88D0D130
                     *                                                 88000140
3003 0  0199              DC      WAIT3+1    HALT 8EFORE ROUTINE.      88D00150
                     *                       THIS WAIT WAS REACHED     88D00160
                     *                       DUE TD SW. REQUEST.       88D00170
                     *                       PUSH START TO CONTINUE.   88D00180
                     *                                                 88000190
3004 0  02E3              DC      WAIT4+1    LOST INTERRUPT AFTER      88D00200
                     *                       WRITE.  PUSH RESET AND    88000210
                     *                       START TO RESTART THE      88D00220
                     *                       PROGRAM.                  88D00230
                     *                                                 88D00240
3005 0  G2F8              DC      WAIT5+1    PROGRAM TERMINATED        88D00250
                     *                       OUE TO LAST PRINTED       88D00260
                     *                       ERRDR.  SUGGEST THAT      88D00270
                     *                       THE 2400 F. T. 8E RUN.    88D00280
                     *                       THIS PRDGRAM CAN 8E       88D00290
                     *                       RETRIED 8Y PUSHING        88DD030D
                     *                       RESET AND START.          88D00310
                     *                                                 88D00320
3006 0  0315              DC      WAIT6+1    LDST INTERRUPT AFTER      88D00330
                     *                       ERASE.  PUSH RESET        88D00340
                     *                       AND START TO RESTART      88D00350
                     *                       THE PROGRAM.              88D00360
                     *                                                 88D00370
3007 0  0340              DC      WAIT7+1    LOST INTERRUPT AFTER      88D0038D
3008 0  0349              OC      WAIT8+1    READ.  PUSH RESET         88D00390
                     *                       AND START TD RESTART      88D00400
                     *                       THE PROGRAM.              88DD0410
                     *                                                 88D00420
3009 0  03D6              DC      WAIT9+1    LOST INTERRUPT AFTER      88D0D430
                     *                       8ACKSPACE.  PUSH RESET    88000440
                     *                       AND START TO RESTART      88000450
                     *                       THE PROGRAM               88D00460
                     *                                                 88D00470
300A 0  0405              DC      WAITA+1    LDST INTERRUPT AFTER      88D00480
                     *                       REWIND.  PUSH RESET       88000490
                     *                       AND START TD RESTART      88D00500
                     *                       THE PROGRAM.              88D00510
                     *                                                 88D00520
300E 0  04EA              DC      WAIT8+1    WAIT 8ECAUSE HALT DN      88D00530
                     *                       ERROR SWITCH IS DN        88D00540
                     *                       AND AN ERROR HAS          88000550
                     *                       OCCURRED.  PUSH START     88D00560
                     *                       TD CONTINUE THE           88000570
                     *                       PRDGRAM.                  08D00580
                     *                                                 88000590
300C D  0588              DC      WAITC+1    TYPEWRITER IS NOT         88D00600
                     *                       READY.  MAKE IT           88D00610
                     *                       READY AND PUSH START.     88000620
                     *                                                 88D00630
300D 0  05F9              OC      WAITD+1    1443 IS NOT READY.        88D00640
                     *                       MAKE IT READY AND         88D00650
                     *                       PUSH START.               88D00660
                     *                                                 88000670
```


2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
300E 0  0242              OC      WAITE+1    FDUND A 8LANK ILSW            86000680
                     *                       AT INTERRUPT.  PUSH           88D00690
                     *                       RESET AND START TD            88D00700
                     *                       RESTART THE PROGRAM.          88D00710
                     *                                                     88000720
300F 0  038E              OC      WAITF+1    LDST INTRPT DN READ           88000730
                     *                       WHILE TRYING TO REST-         88000740
                     *                       DRE RECDRO FDR RETRY          88000750
                     *                       AFTER PASSING CLEANER.        88D00760
                     *                                                     88000770
3010                      ORG     300                                      88D00780
                     *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX           88000790
                     *                                                     88000800
                     *            EDIT RDUTINE                             88000810
                     *                                                     88D00820
                     *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX           88D00830
012C D  8D00              OC      /8D00      PID                           86D00835
012D 00 67000152     START LDX  L3 EDT       IX 3 = LDR RETURN             88000840
012F 00 6FD00124          STX  L3 /0124      STORE IN LDAOER               88D00850
0131 0  6D50              LDX  X  /0050      GO TO LOADER                  88D00860
0132 0  62F8         EDT  LDX   2 -5         IX 2 = NO./ENTRIES            88D00870
0133 0  C208         EDT1 LO    2 8          GET AN ENTRY                  88D00880
0134 00 D600D1C8          STO  L2 EDIT+5     SET IN EDIT AREA              88D00890
0136 0  7201              MDX   2 1          OECR IX 2                     88D00900
0137 0  70F8              MDX     EDT1       LDDP                          88D00910
0138 00 6700013D          LDX  L3 EDT2       IX 3 = LDR RETURN             88D0092D
013A 00 6F000124          STX  L3 /0124      STDRE IN LDADER               88D00930
013C 0  6050              LDX  X  /0050      GD TD LDADER                  88D00940
013D 00 C4000001     EDT2 LD   L  /0001      GET LOC 1                     88D0095D
013F 00 F4000513          EOR  L  TERM                                     88D00960
0141 0  4820              8SC     Z          IS THIS END EDIT              88D00970
0142 D  3001         WAIT1 WAIT   1          NO                            88D00980
                     *                                                     88D00990
0143 00 67000018     8EGIN LDX L3 27         IX = NO LEVELS                88D01000
0145 00 C400023E          LD   L  INTR2      GET COMMON INTR TRAP          88D01010
0147 00 D7000007     8EGAN STD L3 7          SET                           88D01020
D149 0  73FF              MDX   3 -1         DECR IX 3                     88D01030
014A 0  7DFC              MDX     8EGAN      LDDP                          88001040
0148 00 D400D001          STO  L  /0001      SET CE TRAP                   88D01050
014D 00 C400023F          LD   L  TPINT      GET TAPE TRAP                 88D01060
014F 00 D48001C8          STO  I  EDIT+2     SET                           88D01070
0151 00 CC0001DD          LDD  L  RSTRT      GET RESTART                   88DD1080
0153 00 DC000006          STD  L  /0006      SET RESTART                   83D01090
0155 00 C40001D2          LD   L  RSRT       GET RESTART MDX               88D01100
0157 00 D4000000          STO  L  /0000      SET                           88D01110
0159 0  3002         WAIT2 WAIT   2          WAIT FDR SWITCHES             88D01120
                     *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX           88D01130
                     *                                                     88D01140
                     *            PRDGRAM INITILIZATIDN                    88001150
                     *                                                     88D01160
                     *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX           88D01170
015A 0  1010         MTST SLA     16         CLEAR ALL NECESSARY           88001180
0158 0  D05C              STO     TAPEO      *LOCATIONS                    88D01190
015C 0  D05C              STD     TAPE1                                    88D0120:
015D 00 D40004F1          STO  L  RID                                      88D0121D
015F 00 D4000328          STD  L  WRERR                                    88D01220
0161 0  0858              XIC     UNMKO      UNMASK ALL LEVELS             88D01230
0162 0  0859              XID     UNMK1                                    88D01240
                     *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX           88D01250
                     *                                                     88D01260
                     *            SUPERVISDR ROUTINE                       88D01270
                     *                                                     88D01280
                     *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX           88D01290
0163 0  085E         SUPR XIO     RD8SW      READ DATA SWS                 88DD1300
0164 00 C40001C8          LD   L  SWO        GET SWS                       8800131D
0166 0  4828              8SC     +Z         IS DRIVE 0 TO 8E RUN          88D01320
0167 0  700E              MDX     SUPR3      ND                            88D01330
0168 00 C40001C9          LD   L  EDIT+3     GET NO TRACKS DR 0            88D01340
```

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
016A 0  4820              BSC      Z          IS IT A 9 TRACK             88D01350
016B 0  700A              MDX      SUPR3      NO                          88D01360
016C 00 C40001C6          LO    L  EDIT       GET AREA CODE               88001370
016E 0  0049              STO      TAPEO      SAVE                        88D01380
016F 0  6100              LOX    1 0          SET IXING-DR 0              88D01390
0170 00 4400041E          BSI   L  SNDSW      SENSE DRIVE            SRC  88D01400
0172 0  4804              8SC      E          IS DRIVE READY              88D01410
0'73 0  7034              MDX      SUPR4      NO                          88D01420
0174 00 440003F6          BSI   L  RWO        REWIND DRIVE           SRC  88D01430
0176 00 C40001CA    SUPR3 LO    L  E01T+4     GET NO TRACKS DR 1          88D01440
C178 0  4828              8SC      +Z         IS DR 1 AVAIL               88D01450
0179 0  7012              MDX      SUPR°      NO                          88D01460
017A 0  4820              BSC      Z          IS IT A 9 TRACK DR          88D01470
017B 0  7010              MDX      SUPR8      NO                          88001480
017C 00 C40001CB          LD    L  SWO        GET DATA SWS                88D01490
017E 0  1001              SLA      1                                      88D01500
017F 0  4828              BSC      +Z         IS DR 1 TO BE RUN           88D01510
0180 0  7008              MDX      SUPR8      NO                          88001520
0181 00 C40D01C6          LD    L  EDIT       GET AREA CODE               88001530
)183 0  F04A              EOR      M00+1      SET DR 1 MOD                88D01540
0184 0  D034              STO      TAPE1      SAVE                        88D01550
0185 0  6101              LDX    1 1          SET 1XING OR 1              88D01560
0186 00 4400041E          BSI   L  SNDSW      SENSE DRIVE            SRC  88001570
0188 0  4804              BSC      E          IS DR READY                 88001580
0189 0  7026              MDX      SUPR6      NO                          88001590
018A 00 440003F6          8SI   L  RWD        REWIND DRIVE           SRC  88001600
018C 0  C028        SUPR8 LO       TAPEO      GET OR 0 AREA CODE          88D01610
018D 00 4C180191          8SC   L  SUPRO,+-   IS IT ZERO                  88D01620
018F 0  6100              LDX    1 0          NO-SET TO OR 0              88001630
0190 0  7004              MOX      SUPR1      START PROGRAM               88D01640
0191 0  C027        SUPRD LO       TAPE1      GET DR 1 AREA COOE          88001650
0192 00 4C1801F1          BSC   L  RETR1,+-   8RANCH IF CLEAR             88001660
0194 0  6101              LOX    1 1          SET IXING TO OR 1           88D01670
0195 0  082C        SUPR1 XIO      RO8SW      READ DATA SWS               88D01680
0196 0  C034              LD       SWO        GET SWS                     88001690
0197 0  4804              BSC      E          IS HLT BEFORE RTN ON        88001700
0198 0  3003        WAIT3 WAIT     3          YES                         88001710
0199 0  082A              X10      RDSSW      REAO SNS/PRG SWS            88001720
019A 0  C031              LD       SW1        GET SNS/PRG SWS             88D01730
0198 0  1808              SRA      8                                      88001740
019C 00 4C2001A2          BSC   L  SUPR2,Z    IS A RTN SEL                88D01750
019E 00 C40004F1          LD    L  RID        NO-GET RTN NO               88001760
01A0 00 84000684          A     L  ONE        ADD ONE                     88001770
01A2 00 D40004F1    SUPR2 STO   L  RID        SET RTN NO                  88D01780
01A4 00 67B004F1          LOX   I3 RID        IX 3 = ROUTINE NO           88D01790
01A6 0D 4F8001D3          BSC   I3 CMRTT      GO TO ROUTINE               88D01800
                    *                                                     88D01810
                    *                DRIVE 0 SELECTED BUT NOT             88D01820
                    *                READY                                88D01830
                    *                                                     88D01840
01A8 0  1010        SUPR4 SLA      16         CLEAR OR 0 AREA COOE        88D01850
01A9 0  D00E              STO      TAPEO                                  88DD1860
01AA 00 4400043A          BSI   L  PRINT      GO PRINT               SRC  88D01870
01AC 0  C000              DC       /C000      MSG 0                       88D01880
01AD 0  0002              OC       /0002      FORM 2                      88DD1890
01AE 0  7094              MDX      BEGIN      CONTINUE                    88DD1900
01AF 0  7083        SUPR5 MOX      SUPR       LOOP ON ERROR               88D01910
                    *                                                     88D01920
                    *                DPIVE 1 SELECTEO BUT NOT             8B00193D
                    *                READY                                88D01940
                    *                                                     88D01950
01B0 0  1010        SUPR6 SLA      16         CLEAR OR 1 AREA CODE        88D01960
01B1 0  D007              STO      TAPE1                                  88D01970
01B2 00 4400043A          8SI   L  PRINT      GO PRINT               SRC  88D01980
0184 0  C001              OC       /C001      MSG 1                       88D01990
0185 0  0002              OC       /0002      FORM 2                      88002000
0186 0  708C              MOX      BEGIN      CONTINUE                    88002010
01B7 0  708E        SUPR7 MOX      SUPR3      LOOP ON ERROR               88D02020
```


2400 CYCLIC REOUNOANCY CHECK FUNCTION TEST

```
                    *                                                     88D02030
                    *                CONSTANTS                            88D02040
                    *                                                     88D02050
01B8    0000              BSS   E  0                                      88002060
01B8 0  00D0        TAPEO DC       0          AREA CODE                   88D02070
01B9 0  0000        TAPE1 OC       0          AREA CODE                   88D02080
018A 0  0000        UNMKO DC       0          UNMASK LOWER                88002090
0188 0  0480              DC       /0480                                  88D02100
018C 0  0000        UNMK1 DC       0          UNMASK UPPER                88D02110
01B0 0  0481              OC       /0481                                  88D02120
01BE 0  FFFF        MKO   OC       /FFFF      MASK LOWER                  88D02130
018F 0  0480              OC       /0480                                  88D02140
01C0 0  FFFF        MK1   DC       /FFFF      MASK UPPER                  88D02150
01C1 0  0481              DC       /0481                                  88D02160
01C2 0  01C8        RD8SW DC       SWO        READ DATA SWS               88002170
01C3 0  0240              OC       /0240                                  88D02180
01C4 0  01CC        RDSSW OC       SW1        READ SNS/PRG SWS            88D02190
01C5 0  0260              DC       /0260                                  88D02200
01C6 0  0000        EDIT  OC       0          AREA CODE                   88D02210
01C7 0  0000              DC       0          ILSW 8IT                    88D02220
01C8 0  0000              DC       0          1NTR ADRS                   88D02230
01C9 0  0000              DC       0          TRKS DR 0                   88002240
01CA 0  0000              OC       0          TRKS OR 1                   88002250
01C8 0  0000        SWD   DC       0          DATA SW STORAGE             88D02260
01CC 0  0000        SW1   DC       0          SNS/PRG SW STORAGE          88D02270
01CD 0  0000        M00   DC       0                                      88D02280
01CE 0  0020              OC       /0020      MOD FOR DR 1                88002290
0100    0000              8SS   E  0                                      88D02300
01D0 00 4C000143    RSTRT 8SC   L  BEGIN      RESTART 8RANCH              88002310
01D2 0  7005        RS?T  MDX   X  /0005      RESTART MDX                 88D02320
                    *                                                     88D02330
                    *                ROUTINE TA8LE                        88002340
                    *                                                     88002350
0103 0  0016        CMRTT DC       22         NUM8ER OF ROUTINES          88002360
01D4 0  0624              DC       CMRT       ROUTINE 1                   88002370
01D5 0  0624              OC       CMRT               2                   88D02380
01D6 0  0624              OC       CMRT               3                   88D02390
0107 0  0624              DC       CMRT               4                   88D02400
J1D8 0  0624              DC       CMRT               5                   88D02410
01D9 0  0624              OC       CMRT               6                   88D02420
010A 0  0624              DC       CMRT               7                   88002430
01D8 0  0689              DC       RTN8               8                   88002440
01DC 0  06E3              OC       RTN9               9                   88002450
01DD 0  0758              OC       RTN10              10                  88D02460
010E 0  0784              OC       RTN11              11                  88D02470
01DF 0  07F7              OC       CMR12              12                  68002480
01E0 0  07F7              OC       CMR12              13                  88D02490
01E1 0  07F7              OC       CMR12              14                  86D02500
01E2 0  07F7              DC       CMR12              15                  88D02510
01E3 0  07F7              OC       CMR12              16                  88002520
01E4 0  07F7              OC       CMR12              17                  88D02530
01E5 0  07F7              DC       CMR12              18                  B8D02540
01E6 0  0855              DC       RTN19              19                  38002550
01E7 0  08AD              DC       RT20               20                  88D02560
01E8 0  08F7              OC       RT21               21                  88D02570
01E9 0  01EA              OC       RETRN      ENO PROG                    88002580
                    *XXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXXX XXXXXXXXXXX      88D02590
                    *                                                     88D02600
                    *                ROUTINES RETURN HERE                 88002610
                    *                                                     88D02620
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      88002630
01EA 00 C40004F1    RETRN LD    L  RIO        GET RTN NUM8ER              88002640
01EC 0  F0E6              EOR      CMRTT                                  88D02650
01ED 00 4C1801F1          8SC   L  RETR1,+-   8RANCH = ALL RTNS           88002660
01EF 00 4C000195          8SC   L  SUPR1      CONTINUE PROG               88002670
01F1 00 4400043A    RETR1 8SI   L  PRINT      PRINT-PROG COMPLETE  SRC    88D02680
01F3 0  C002              DC       /C002      MSG 2                       88D02690
01F4 0  0032              DC       /0002      FORM 2                      88D02700
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01F5 0  7000          MOX     RETR2          CONTINUE ADRS
01F6 0  1010    RETR2 SLA     16             CLEAR AREA CODE           88002710
01F7 00 050001B8      STO  L1 TAPEO                                    88002720
01F9 00 C40001B8      LO   L  TAPEO          GET OR 0 AREA COOE        88002730
01FB 00 4C180203      8SC  L  RETR3,+-       IS IT CLEAR               88002740
01FD 0  6100          LOX  1  0              NO-SET TO OR 0            88D02750
01FE 0  1010          SLA     16             CLEAR RTN NUMBER          88002760
01FF 00 040004F1      STO  L  R10                                      88002770
0201 00 4C000195      8SC  L  SUPR1          GO 10 SUPERVISOR          88002780
0203 00 C4000189RETR3 LO   L  TAPE1          GET DR 1 AREA COOE        88002790
0205 00 4C180200      8SC  L  ENO,+-         IS 1T CLEAR               88002800
0207 0  6101          LOX  1  1              NO-SET TO OR 1            88002810
0208 0  1010          SLA     16             CLEAR ROUTINE NUMBER      88002820
0209 00 D40004F1      STO  L  RIO                                      88D02830
0208 00 4C000195      BSC  L  SUPR1          GO TO SUPERVISOR          88002840
                *                                                      8B002850
020D 00 0C0001C2ENO   XID  L  R08SW          REAO OATA SWS             88002860
020F 0  1010          SLA     16             CLEAR A REG               88002870
0210 00 040004F1      STO  L  R10            CLEAR RTN ND              88002880
0212 00 C40001CB      LO   L  SWO            GET DATA SWS              88002890
0214 0  1804          SRA     4                                        88002900
0215 00 4C040163      8SC  L  SUPR,E         IS LODP PROG ON           88D02910
0217 00 4C000143      8SC  L  8EGIN          ND                        8B002920
                *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88D02930
                *                                                      88002940
                *               TAPE INTERRUPT ROUTINE                 88002950
                *                                                      88002960
                *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88002970
0219 0  0000    INTR  OC      0                                        88D02980
021A 0  2818          STS     TASS           SAVE STATUS          IE   8B002990
021B 0  081A          STO     TAAQ           SAVE A ANO Q              88003000
021C 0  081B          XIO     ILSW           SENSE ILSW                88D03010
021D 0  D01D          STO     TAILS          SAVE                      88003020
021E 00 44180240      8SI  L  TERR,+-        BRANCH IF 8LANK           88D03030
0220 00 F40001C7      EOR  L  EDIT+1                                   8800304C
0222 00 4C180227      BSC  L  INTR1,+-       8RANCH IF TAPE            88003050
0224 00 44000242      8SI  L  SVINT          NOT TAPES                 88003060
0226 0  7008          MOX     INTR3                                    88003070
0227 0  C014    INTR1 LO      SOSW           GET FNC                   88003080
0228 00 F5000188      EOR  L1 TAPEO          SET AREA CODE             88003090
022A 0  0012          STO     SOSW+1         SAVE                      86003100
0228 0  0810          XIO     SOSW           SENSE-NO RESET            8B003110
022C 0  C010          LD      SOSW+1         GET IOCC                  88003120
022D 00 F4000684      EOR  L  ONE            SE1 BIT 15                88003130
022F 0  0000          STO     SDSW+1         SAVE                      88003140
0230 0  0808          XIO     SOSW           SENSE-RESET               88003150
0231 0  0008          STO     DSW            SAVE SENSE WO             88003160
0232 0  C803    INTR3 LOO     TAAQ           RESTORE A ANO Q           88003170
0233 0  2000    TASS  LOS     0              RESTORE STATUS            88003180
0234 00 4CC00219      8OSC I  INTR           EXIT                      88003190
0236    0000          BSS  E  0                                   IX   88003200
0236 0  0000    TAAQ  DC      0              A ANO Q STORAGE           88003210
0237 0  0000          DC      0                                        88003220
                *                                                      8B003230
0238 0  0000    ILSW  OC      0              SENSE ILSW IOCC           88003240
0239 0  0300          OC      /0300                                    88003250
                *                                                      88D03260
023A 0  0000    DSW   OC      0              OSW STORAGE               8B003270
023B 0  0000    TAILS DC      0              ILSw STORAGE              8B003280
                *                                                      88D03290
023C 0  0700    SOSW  OC      /0700          OSW IOCC                  88003300
0230 0  0000          OC      0                                        88D03310
                *                                                      88003320
023E 0  0242    INTR2 OC      SVINT          COMMON INT TRAP           88003330
023F C  0219    TPINT OC      INTR           TAPE INT TRAP             88003340
                *                                                      8B003350
0240 0  1000    TERR  NOP                                              8B003360
0241 0  300E    WAITE OC      /300E          BLANK ILSW WAIT           8B003370
                                                                       88003380
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```
                *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8B003390
                *                                                      88003400
                *                    ROUTINE TO SERVICE NON-           88D03410
                *                    PROGRAM GENEPATEO                 88D03420
                *                    INTERRUPTS                        8B003430
                *                                                      8BD03440
                *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88D03450
0242 0  0000    SVINT OC      0                                   IE   88D03460
0243 00 0C00018E      XIO  L  MKO            MASK ALL LVLS             88D03470
0245 00 0C0001C0      XIO  L  MK1                                      8B003480
0247 0  0044          STO     SVID           SAVE A REG                8B003490
0248 00 C400000A      LO   L  /000A          GET LOX 10                8B003500
02-A 00 9400023E      S    L  INTR2          SUB AORS SVINT            8B003510
024C 0  4818          8SC     +-             SKIP = AORS 10            88003520
0240 0  7006          MOX     SVIN3          NOT AORS 10               88D03530
024E 00 C400000A      LO   L  /000A          GET AORS 10               88D03540
0250 0  D0F1          STO     SVINT          SET RETURN                88D03550
0251 0  C0EC          LO      INTR2          RESTORE LOC 10            88D03560
0252 00 0400000A      STO  L  /000A                                    88003560
0254 00 0C000238SVIN3 XIO  L  ILSW           RESET ILSW                8BD03570
0256 00 7402028A      MOX  L  SV7,2          SET PASS SW               8B003580
0258 0  1010          SLA     16                                       88D03590
0259 0  0020          STO     SV4            CLEAR AREA CODE CTR       8BD03600
025A 0  C02A          LD      SV2                                      8B003610
025B 0  D020          STO     SV6            SET IOCC IN USE SW        8B003620
025C 0  C027    SVINO LO      SV1                                      8BD03630
025D 0  002A          STO     SV5            SET MOOIFIER CTR          88003640
025E 0  C028    SVIN1 LO      SV4            *                         8BD03650
025F 0  100B          SLA     11             *                         8BD03660
0260 0  E827          OR      SV5            *BUILD IOCC               8BD03670
0261 0  E827          OR      SV6            *                         8B003680
0262 0  002A          STO     SV10+1         *                         8B003690
0263 0  0828          XID     SVIO           SENSE ANO RESET DSW       8BD03700
0264 00 74FF0288      MOX  L  SV5,-1                                   88D03710
0266 0  70F7          MDX     SVIN1          BRANCH IF NOT ALL MD      88D03720
0267 00 74010287SVIN2 MOX  L  SV4,1          INCREMENT AREA COOE       8B003730
0269 00 C40001C6      LD   L  EDIT           GET TAPE AREA CODE        8BD03740
0268 0  1808          SRA     11                                       8BD03750
026C 0  901A          S       SV4                                      8BD03760
0260 0  4818          BSC     +-             SKIP = NOT TAPE           88D03770
026E 0  70F8          MOX     SVIN2          SET TO NEXT A C           88D03780
026F 0  C017          LO      SV4                                      88003790
0270 0  9012          S       SVO            CK IF ALL A C USEO        8B003800
0271 0  4808          8SC     +                                        8B003810
0272 0  70E9          MOX     SVINO          GO USE NEXT A C           8B003820
0273 00 74FF028A      MOX  L  SV7,-1         SKIP IF SECONO PASS       8B003830
0275 0  7001          MOX     *+1                                      88003840
0276 0  7005          MOX     SVEXT                                    8BD03850
0277 0  C00E          LO      SV3                                      8BD03860
0278 0  D010          STO     SV6            SET IOCC FOR PI           8B003870
0279 0  1010          SLA     16                                       8B003880
027A 0  D00C          STD     SV4            SET AC FOR NEXT           88D03890
0278 0  70E0          MOX     SVINO          *PASS                     8B003900
027C 0  C00F    SVEXT LO      SVIO           RESTORE ACCUM             8800391C
0270 00 0C00018A      XIO  L  UNMKO          UNMASK ALL LEVELS         88003920
027F 00 0C00018C      XIO  L  UNMK1                                    8BD03930
0281 00 4CC00242      8OSC I  SVINT          EXIT                      8B003940
                *                                                 IX   8B003950
                *                 CONSTANTS                            8B003960
                *                                                      8B003970
0283 0  001F    SVO   OC      /001F          NUMBER OF AREA COOES      8B003980
0284 0  00FF    SVI   OC      /00FF          NUMBER OF MOOIFIERS       88003990
0285 0  0701    SV2   OC      /0701          RESET OSW                 88004000
0286 0  0700    SV3   DC      /0700          RESET PISW                8B004010
0287 0  0000    SV4   OC      0              AREA CODE INOICATOR       8B004020
0288 0  0000    SV5   OC      0              MOOIFIER INOICATOR        88004030
0289 0  0000    SV6   DC      0              IOCC IN USE               88004040
028A 0  0000    SV7   OC      0              PASS SWITCH               BB004050
                                                                       8B004060
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2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
028C      0000              BSS   E  0                                         BBD04070
028C 0    0000     SVIO     DC       0            SENSE DSW IOCC               BBD04080
028D 0    0000              DC       0                                         BBD04090
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04100
                   *                                                           BBD04110
                   *                  ROUTINE TO SET 7F PATTERN                BBD04120
                   *                                                           BBD04130
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04140
028E 0    0000     SP7F     DC       0                                SE       BBD04150
028F 0    6308              LDX   3  8            IX 3 = 16 CHARACTERS         BBD04160
0290 0    C012              LD       P7F          GET 7F7F                     BBD04170
0291 00   07000938 SP7F0    STO   L3 IOAA-1       SET IN I/O AREA              BBD04180
0293 0    73FF              MDX   3  -1           DECR IX 3                    BBD04190
0294 0    70FC              MDX      SP7F0        LOOP                         BBD04200
0295 00   67000131          LDX   L3 305          IX 3= 608 CHARACTERS         BBD04210
0297 0    1010              SLA      16           CLEAR A REG                  BBD04220
0298 00   D7000940 SP7F1    STO   L3 IOAA+7       SET IN I/O AREA              BBD04230
029A 0    73FF              MDX   3  -1           DECR IX 3                    BBD04240
029B 0    70FC              MDX      SP7F1        LOOP                         BBD04250
029C 0    C007              LD       CRC7F        GET 007F                     BBD04260
029D 00   D4000942          STO   L  IOAA+9       SET AS CRC CHARACTER         BBD04270
029F 00   D4000944          STO   L  IOAA+11      SET AS LRC CHARACTER         BBD04280
02A1 00   4C80028E          BSC   I  SP7F         EXIT                    SX   BBD04290
                   *                                                           BBD04300
                   *                  CONSTANTS                                BBD04310
                   *                                                           BBD04320
02A3 0    7F7F     P7F      DC       /7F7F        PATTERN WORD                 BBD04330
02A4 0    007F     CRC7F    DC       /007F        CRC/LRC CHARACTER            BBD04340
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04350
                   *                                                           BBD04360
                   *                  ROUTINE TO SET BF PATTERN                BBD04370
                   *                                                           BBD04380
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04390
02A5 0    0000     SPBF     DC       0                                SE       BBD04400
02A6 0    6308              LDX   3  8            IX 3 = 16 CHARACTERS         BBD04410
02A7 00   C40006E1          LD    L  PBF          GET PATTERN                  BBD04420
02A9 00   0700093B SP8F0    STO   L3 IOAA-1       SET IN I/O AREA              BBD04430
02AB 0    73FF              MDX   3  -1           DECR IX 3                    BBD04440
02AC 0    70FC              MDX      SP8F0        LOOP                         BBD04450
02AD 00   67000131          LDX   L3 305          IX 3= 608 CHARACTERS         BBD04460
02AF 0    1010              SLA      16           CLEAR A REG                  BBD04470
02B0 00   07000940 SPBF1    STO   L3 IOAA+7       SET IN I/O AREA              BBD04480
02B2 0    73FF              MDX   3  -1           DECR IX 3                    BBD04490
02B3 0    70FC              MDX      SPBF1        LOOP                         BBD04500
02B4 0    C006              LD       CRCBF        GET 008F                     BBD04510
02B5 00   04000942          STO   L  IOAA+9       SET AS CRC CHARACTER         BBD04520
02B7 00   04000944          STO   L  IOAA+11      SET AS LRC CHARACTER         BBD04530
02B9 00   4C8002A5          BSC   I  SPBF         EXIT                    SX   BBD04540
                   *                                                           BBD04550
                   *                  CONSTANTS                                BBD04560
                   *                                                           BBD04570
02BB 0    00BF     CRC8F    DC       /008F        CRC/LRC CHARACTER            BBD04580
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04590
                   *                                                           BBD04600
                   *                  SET I/O AREA TO B0B0                     BBD04610
                   *                                                           BBD04620
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04630
02BC 0    0000     SPB0     DC       0                                SE       BBD04640
02BD 0    6308              LDX   3  8            IX 3 = 16 CHARACTERS         BBD04650
02BE 00   C40002D3          LD    L  PB0          GET B0B0                     BBD04660
02C0 00   07000938 RT11J    STO   L3 IOAA-1       SET IN I/O AREA              BBD04670
02C2 0    73FF              MDX   3  -1           DECR IX 3                    BBD04680
02C3 0    70FC              MDX      RT11J        LOOP                         BBD04690
02C4 00   67000131          LDX   L3 305          IX 3 = 608 CHARACTERS        BBD04700
02C6 0    1010              SLA      16           CLEAR A REG                  BBD04710
02C7 00   D7000940 RT11K    STO   L3 IOAA+7       SET IN I/O AREA              BBD04720
02C9 0    73FF              MDX   3  -1           DECR IX 3                    BBD04730
02CA 0    70FC              MDX      RT11K        LOOP                         BBD04740
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2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

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02CB 0    C006              LD       CRCB0        GET CRC/LRC CHARACTER        BBD04750
02CC 00   D4000942          STO   L  IOAA+9       SET AS CRC CHARACTER         BBD04760
02CE 00   D4000944          STO   L  IOAA+11      SET AS LRC CHARACTER         BBD04770
02D0 00   4C8002BC          BSC   I  SPB0         EXIT                    SX   BBD04780
02D2 0    00B0     CRCB0    DC       /00B0        CRC/LRC CHARACTER            BBD04790
02D3 0    B0B0     PB0      DC       /B0B0        PATTERN                      BBD04800
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04810
                   *                                                           BBD04820
                   *                  WRITE ROUTINE                            BBD04830
                   *                                                           BBD04840
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX                 BBD04850
02D4 0    0000     WRT      DC       0                                SE       BBD04860
02D5 00   C50001B8 WRT01    LD    L1 TAPEO        GET AREA CODE                BBD04870
02D7 0    F04E              EOR      WRTCC        SET WRT FNC                  BBD04880
02D8 0    D04A              STO      WRIOC+1      SAVE                         BBD04890
02D9 0    C051              LD       WRTWC        GET WRT WD CT                BBD04900
02DA 00   0400093B          STO   L  IOA          SET                          BBD04910
                   *                                                           BBD04920
02DC 00   4400041E WRT02    BSI   L  SNDSW        SENSE DRIVE             SRC  BBD04930
02DE 0    1801              SRA      1                                         BBD04940
02DF 0    4804              BSC      E            IS DR READY                  BBD04950
02E0 0    7011              MDX      WRT04        NO                           BBD04960
                   *                                                           BBD04970
02E1 0    0840              XIO      WRIOC        WRITE ONE RECORD             BBD04980
02E2 0    3004     WAIT4    WAIT     4            WAIT FOR INTRPT              BBD04990
                   *                                                           BBD05000
02E3 00   C400023A          LD    L  DSW          GET SENSE WORD               BBD05010
02E5 0    1802              SRA      2                                         BBD05020
02E6 0    4804              BSC      E            IS TAPE MARKER ON            BBD05030
02E7 0    7036              MDX      WRT11        YES                          BBD05040
                   *                                                           BBD05050
02E8 00   C400023A          LD    L  DSW          GET SENSE WD                 BBD05060
02EA 0    E03C              AND      WRTSW                                     BBD05070
02EB 0    4820              BSC      Z            IS WORD AS EXPECTED          BBD05080
02EC 0    700E              MDX      WRT06        NO                           BBD05090
                   *                                                           BBD05100
02ED 0    C03A              LD       WRERR        GET ERROR COUNT              BBD05110
02EE 0    4820              BSC      Z            WERE THERE ANY ERRS          BBD05120
02EF 0    7026              MDX      WRT09        YES                          BBD05130
02F0 00   4C8002D4 WRT03    BSC   I  WRT          EXIT                    SX   BBD05140
                   *                                                           BBD05150
                   *                  DRIVE WAS NOT READY                      BBD05160
                   *                                                           BBD05170
02F2 00   4400043A WRT04    BSI   L  PRINT        PRINT DR NOT READY           BBD05180
02F4 0    E002              DC       /E002        ERROR 2                      BBD05190
02F5 0    0003              DC       /0003        FORM 3                       BBD05200
02F6 0    7001              MDX      WRT05        CONTINUE                     BBD05210
02F7 0    70E4              MDX      WRT02        LOOP ON ERROR                BBD05220
02F8 0    1010     WRT05    SLA      16           CLEAR ERROR CT               BBD05230
02F9 0    D02E              STO      WRERR                                     BBD05240
02FA 0    3005     WAIT5    WAIT     5            TERMINATE PROG               BBD05250
                   *                                                           BBD05260
                   *                  DSW NOT AS EXPECTED                      BBD05270
                   *                                                           BBD05280
02FB 0    C02C     WRT06    LD       WRERR        GET ERROR CT                 BBD05290
02FC 00   840006B4          A     L  ONE          ADD ONE                      BBD05300
02FE 0    D029              STO      WRERR        SAVE                         BBD05310
02FF 0    9029              S        FOUR         SUB 4                        BBD05320
0300 0    4820              BSC      Z            RETRIED 3 TIMES              BBD05330
0301 0    700B              MDX      WRT08        NO                           BBD05340
0302 00   C400023A          LD    L  DSW          GET SENSE WD                 BBD05350
0304 00   D4000438          STO   L  SNSV         SAVE                         BBD05360
0306 00   4400043A          BSI   L  PRINT        PRINT-CAN NOT WRITE     SRC  BBD05370
0308 0    E003              DC       /E003        ERROR 3                      BBD05380
0309 0    0003              DC       /0003        FORM 3                       BBD05390
030A 0    70ED              MDX      WRT05        CONTINUE                     BBD05400
030B 0    1010     WRT07    SLA      16           CLEAR ERR CT                 BBD05410
030C 0    D01B              STO      WRERR                                     BBD05420
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                        *
030D 00 440003C4  WRT08 BSI  L  BSP         GO BACKSPACE                    8BD05430
030F 00 C50001B8        LD   LI TAPE0       GET AREA CODE                   8BD05440
031I 0  F012            EOR     ERA         SET ERASE FNC                   8BD05450
0312 0  D0I2            STD     ERA+1       SET                             8BD05460
0313 0  0810            XIO     ERA         ISSUE ERASE                     8BD05470
                        *                                                   8BD05480
0314 0  3006      WAIT6 WAIT    6           WAIT FOR INTRPT                 8BD05490
                        *                                                   8BD05500
0315 0  70BF            MDX     WRT01       TRY AGAIN                       8BD05510
                        *                                                   8BD05520
                        *           HAD ERRORS                              8BD05530
                        *                                                   8BD05540
0316 00 4400043A  WRT09 BSI  L  PRINT       PRINT RECOVERED WRT             8BD05550
0318 0  A00I            DC      /A001       MSG 1                           8BD05560
0319 0  0004            DC      /0004       FORM 4                          8BD05570
031A 0  7000            MDX     WRT10       CONTINUE                        8BD05580
031B 0  1010      WRT10 SLA     I6          CLEAR ERROR CT                  8BD05590
031C 0  D00B            STD     WRERR                                       8BD05600
031D 0  70D2            MDX     WRT03       GO EXIT                         8BD05610
031E 00 440003F6  WRT11 BSI  L  RWD         GO REWIND                  SRC  8BD05620
0320 0  70B4            MDX     WRT01       WRITE                           8BD05630
                        *                                                   8BD05640
                        *           CONSTANTS                               8BD05650
                        *                                                   8BD05660
0322    0000            BSS  E  0                                           8BD05670
0322 0  0938      WRIOC DC      IOA         WRITE IOCC                      8BD05680
0323 0  0000            DC      0                                           8BD05690
                        *                                                   8BD05700
0324 0  0402      ERA   DC      /0402       ERASE IOCC                      8BD05710
0325 0  0000            DC      0                                           8BD05720
                        *                                                   8BD05730
0326 0  0500      WRTCC DC      /0500       WRITE FNC                       8BD05740
0327 0  3DBF      WRTSW DC      /3D8F       DSW CK-WRITE                    8BD05750
0328 0  0000      WRERR DC      0           ERROR CT                        8BD05760
0329 0  0004      FOUR  DC      4           CONSTANT                        8BD05770
032A 0  000B      ELE   DC      11          CONSTANT                        8BD05780
032B 0  4139      WRTWC DC      /4139       WRT WD CT                       8BD05790
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD05800
                        *                                                   8BD05810
                        *           READ ROUTINE                            8BD05820
                        *                                                   8BD05830
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD05840
032C 0  0000      RD    DC      0                                      SE   8BD05850
032D 00 C5000188        LD   L1 TAPE0       GET AREA CODE                   8BD05860
032F 00 F400038E        EOR  L  RDFNC       SET READ FNC                    8BD05870
0331 00 D400038D        STO  L  RDIOC+I     SAVE                            8BD05880
0333 00 C400038A        LD   L  RDTWC       GET READ WD CT                  8BD05890
0335 00 D4000938        STO  L  IOA         SET                             8BD05900
0337 00 6F000353        STX  L3 RDE+I       SAVE IX 3                       8BD05910
0339 00 4400041E  RD01  BSI  L  SNDSW       SENSE DRIVE                SRC  8BD05920
033B 0  1801            SRA     1                                           8BD05930
033C 0  4804            BSC     E           IS DRIVE READY                  8BD05940
033D 0  7018            MDX     RD02        NO                              8BD05950
                        *                                                   8BD05960
033E 0  087D            XIO     RDIOC       ISSUE READ                      8BD05970
                        *                                                   8BD05980
033F 0  3007      WAIT7 WAIT    7           WAIT FOR INTRPT                 8BD05990
                        *                                                   8BD06000
0340 00 C400023A        LD   L  DSW         GET SENSE WD                    8BD06010
0342 0  E07C            AND     RDIDS                                       8BD06020
0343 0  4820            BSC     Z           IS DSW AS EXPECTED              8BD06030
0344 0  7019            MDX     RD04        NO                              8BD06040
                        *                                                   8BD06050
0345 00 440003C4        BSI  L  BSP         GO BACKSPACE               SRC  8BD06060
                        *                                                   8BD06070
0347 0  0874            XIO     RDIDC       ISSUE READ                      8BD06080
                        *                                                   8BD06090
                                                                            8BD06100
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0348 0  3008      WAIT8 WAIT    8           WAIT FOR INTRPT                 8BD06110
                        *                                                   8BD06120
0349 00 C400023A        LD   L  DSW         GET SENSE WD                    8BD06130
0348 0  E074            AND     RD2DS                                       8BD06140
034C 0  4820            BSC     Z           IS DSW OK                       8BD06150
034D 0  7010            MDX     RD04        ND                              8BD06160
                        *                                                   8BD06170
034E 00 C4000328        LD   L  WRERR       GET ERROR CT                    8BD06180
0350 0  4820            BSC     Z           ANY ERRORS                      8BD06190
0351 0  7059            MDX     RD07        YES                             8BD06200
0352 00 67000000  RDE   LDX  L3 0           RESTORE IX 3                    8BD06210
0354 00 4C80032C        BSC  I  RD          EXIT                       SX   8BD06220
                        *                                                   8BD06230
                        *           DRIVE IS NOT READY                      8BD06240
                        *                                                   8BD06250
0356 00 4400043A  RD02  BSI  L  PRINT       PRINT-NOT READY                 8BD06260
0358 0  E004            DC      /E004       ERROR 4                         8BD06270
0359 0  0003            DC      /0003       FORM 3                          8BD06280
035A 0  700I            MDX     RD03        CONTINUE                        8BD06290
035B 0  70DD            MDX     RD01        LOOP ON ERROR                   8BD06300
035C 00 4C0002F8  RD03  BSC  L  WRT05       GO TERMINATE PROG               8BD06310
                        *                                                   8BD06320
                        *           SENSE WORD IS NOT CORRECT               8BD06330
                        *                                                   8BD06340
035E 00 C400023A  RD04  LD   L  DSW         GET SENSE WORD                  8BD06350
0360 0  E060            AND     CORDS                                       8BD06360
0361 0  4820            BSC     Z           IS ERROR CORRECTABLE            8BD06370
0362 0  7036            MDX     RD05        NO                              8BD06380
0363 00 C4000328        LD   L  WRERR       GET ERROR CT                    8BD06390
0365 0  E044            AND     RDTX0       SAVE RETRY CT                   8BD06400
0366 0  9042            S       K009        SUB 9                           8BD06410
0367 0  4818            BSC     +-          IS CT = 9                       8BD06420
0368 0  7007            MDX     CLN         YES                             8BD06430
0369 00 C4000328        LD   L  WRERR       GET ERROR CT                    8BD06440
036B 00 84000684        A    L  ONE         ADD I                           8BD06450
036D 00 D4000328        STO  L  WRERR       SAVE                            8BD06460
036F 0  7044            MDX     RD09        GO RETRY                        8BD06470
                        *                                                   8BD06480
                        *           GO PAST CLEANER                         8BD06490
                        *                                                   8BD06500
0370 00 C4000328  CLN   LD   L  WRERR       GET ERROR CT                    8BD06510
0372 0  1808            SRA     8           SAVE CLEAN CT                   8BD06520
0373 0  9035            S       K009        SUB 9                           8BD06530
0374 00 4C180399        BSC  L  RD05,+-     BRANCH = 9                      8BD06540
0376 0  8031            A       K010        ADD 10                          8BD06550
0377 0  I008            SLA     8                                           8BD06560
0378 00 D4000328        STO  L  WRERR       SAVE                            8BD06570
037A 0  6305      CLN1  LDX     3 5         SET TO PASS CLEANER             8BD06580
037B 0  6808      CLN2  STX     3 CLN3+I    SAVE IX 3                       8BD06590
037C 00 440003C4        BSI  L  BSP         GO BACKSPACE               SRC  8BD06600
037E 00 4400041E        BSI  L  SNDSW       SENSE DRIVE                SRC  8BD06610
0380 0  1803            SRA     3                                           8BD06620
0381 0  4804            BSC     E           IS DR AT LD PT                  8BD06630
0382 0  7010            MDX     CLN8        YES                             8BD06640
0383 00 67000000  CLN3  LDX  L3 0           RESTORE IX 3                    8BD06650
0385 0  73FF            MDX     3 -I        DECR IX 3                       8BD06660
0386 0  70F4            MDX     CLN2        LOOP                            8BD06670
0387 0  6305            LDX     3 5         SET TO RESTORE                  8BD06680
0388 0  6806      CLN5  STX     3 CLN7+I    SAVE IX 3                       8BD06690
0389 0  73FF            MDX     3 -1        DECR IX 3                       8BD06700
038A 0  7001            MDX     CLN6                                        8BD06710
038B 0  70AD            MDX     RD0I        GO RETRY RECORD                 8BD06720
038C 0  082F      CLN6  XIO     RDIOC       SKIP RECORD                     8BD06730
038D 0  300F      WAITF DC      /300F       WAIT FOR INTRPT                 8BD06740
038E 00 67000000  CLN7  LDX  L3 0           RESTORE IX 3                    8BD06750
0390 0  73FF            MDX     3 -I        DECR IX 3                       8BD06760
0391 0  70F6            MDX     CLN5        GO SKIP                         8BD06770
0392 0  70F5            MDX     CLN5                                        8BD06780
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                        *
                        *                  RESTORE TAPE TO THE
                        *                  RECORO IN ERROR
                        *
0393 0  C013    CLN8  LD      K005      GET 5                          8B006790
0394 0  90EF          S       CLN3+1    SUB PRESENT LOC                8B006800
0395 0  00EE          STO     CLN3+1    SAVE                           8B006810
0396 00 67800384      LOX  I3 CLN3+1    LOAO IX 3                      8B006820
0398 0  70EF          MOX     CLN5      GO RESTORE                     8B006830
0399 00 C400023A R005 LO   L  OSW       GET SENSE WO                   8B006840
039B 00 04000438      STO  L  SNSV      SAVE                           8B006850
039D 00 4400043A      BSI  L  PRINT     PRINT UNCORRECTABLE            8B006860
039F 0  E005          OC      /E005     ERROR 5                        8B006870
03A0 0  0003          OC      /0003     FORM 3                         8B006880
03A1 0  700E          MOX     R008      CONTINUE                       8B006890
03A2 0  1010    R006  SLA     16        CLEAR ERROR CT                 8B006900
03A3 00 04000328      STO  L  WRERR                                    8B006910
03A5 00 4C000384      BSC  L  R009      LOOP ON ERROR                  8B006920
D3A7 0  0005    K005  OC      5         CONSTANT 5                     8B006930
03A8 0  000A    K010  OC      10        CONSTANT 10                    8B006940
03A9 0  0009    K009  OC      9         CONSTANT 9                     8B006950
03AA 0  00FF    ROTXO OC      /00FF     SAVE RETRY CT                  8B006960
                        *                                              8B006970
                        *                  HAO PREVIOUS ERRORS         8B006980
                        *                                              8B006990
03AB 00 4400043A R007 BSI  L  PRINT     PRINT-RECOVEREO REAO SRC       8B007000
03A0 0  A002          OC      /A002     MSG 2                          8B007010
03AE 0  0004          OC      /0004     FORM 4                         8B007020
03AF 0  7000          MOX     R008      CONTINUE                       8B007030
03B0 0  1010    R008  SLA     16        CLEAR ERROR CT                 8B007040
03B1 00 04000328      STO  L  WRERR                                    8B007050
03B3 0  709E          MOX     ROE       GO EXIT                        8B007060
                        *                                              8B007070
                        *                  SET UP TO RETRY             8B007080
                        *                                              8B007090
03B4 00 440003C4 R009 BSI  L  BSP       GO 8ACKSPACE           SRC     8B007100
03B6 00 44000617      BSI  L  OSLT      GO OESELECT            SRC     8B007110
03B8 00 4C000339      BSC  L  R001      GO RETRY                       8B007120
                        *                                              8B007130
                        *                  CONSTANTS                   8B007140
                        *                                              8B007150
03BA 0  4008    RDTWC OC      /4008     REAO WO CT                     8BDD7160
03BC    0000          BSS  E  0                                        8B007170
03BC 0  0938    RDIOC OC      IOA       REAO IOCC                      8B007180
03BD 0  0DDD          OC      0                                        BB007190
                        *                                              BB007200
03BE 0  0602    ROFNC OC      /0602     REAO FUNCTION                  8B007210
03BF 0  309F    R010S OC      /309F     OSW CK-FIRST WORO              8B007220
03C0 0  3F9F    R020S OC      /3F9F     OSW CK-SECOND WORO             BB007230
03C1 0  3C0F    COROS OC      /3C0F     OSW CK-CORRECTABLE             8B007240
03C2 0  0001    SELOR OC      1         SEL OTHER OR                   8B007250
03C3 0  0000          OC      0                                        8B007260
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8B007270
                        *                                              8B007280
                        *                  BACKSPACE ROUTINE           8B007290
                        *                                              8B007300
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8B007310
03C4 0  0000    BSP   OC      0                              SE        8B007320
03C5 00 4400041E BSP01 BSI  L  SNOSW     SENSE OR               SRC     8B007330
03C7 0  1801          SRA     1                                        8B007340
03C8 0  4804          BSC     E         IS OR REAOY                    8B007350
03C9 0  7010          MOX     BSP06     NO                             8B007360
03CA 0  1802          SRA     2                                        8B007370
03CB 00 4C0403CE      BSC  L  8SP02,E   IS DR AT  LO PT                8B007380
03C0 0  7002          MDX     BSP03     NO                             8B007390
03CE 00 4C8003C4 BSP02 BSC  I  BSP       EXIT                   SRC     8B007400
                        *                                              8B007410
0300 00 C5000188 BSP03 LO   L1 TAPEO     GET AREA COOE                  8B007420
                                                                       8B007430
                                                                       8B007440
                                                                       8B007450
                                                                       8B007460
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0302 0  F021          EOR     BSPIO     SET BSP FNC                    8B007470
03D3 0  0021          STO     BSPIO+1   SAVE                           8B007480
                        *                                              8B007490
03D4 0  081F          XIO     BSPIO     ISSUE BACKSPACE                8B007500
                        *                                              8B007510
0305 0  3009    WAIT9 WAIT    9         WAIT FOR INTRPT                8B007520
                        *                                              8B007530
0306 00 C400023A      LO   L  OSW       GET SENSE WO                   8B007540
0308 0  4804          BSC     E         IS OR READY                    8B007550
0309 0  7001          MOX     BSP04     NO                             8B007560
03DA 0  70F3          MOX     BSP02     YES-EXIT                       8B007570
                        *                                              8B007580
                        *                  OSW WRONG AFTER BSP         8B007590
0308 00 C400023A BSP04 LO  L  OSW       GET SENSE WO                   8B007600
0300 00 04000438      STO  L  SNSV      SAVE                           8B007610
030F 00 4400043A      BSI  L  PRINT     PRINT WRONG DSW                8B007620
03E1 0  E006          OC      /ED06     ERROR 6                        8B007630
03E2 0  0003          OC      /0003     FORM-3                         8B007640
03E3 0  7001          MOX     BSP05     CONTINUE                       8B007650
03E4 0  70EB          MOX     BSP03     LOOP ON ERROR                  8B007660
03E5 00 4C0002F8 BSP05 BSC  L  WRT05     TERMINATE                      8B007670
                        *                                              8B007680
                        *                  ORIVE NOT READY             8B007690
                        *                                              8B007700
03E7 00 C400023A BSP06 LO   L  DSW       GET SENSE WO                   8B007710
03E9 00 04000438      STO  L  SNSV      SAVE                           8B007720
03EB 00 4400043A      BSI  L  PRINT     PRINT-NOT READY        SRC     8B007730
03E0 0  E007          OC      /E007     ERROR 7                        8B007740
03EE 0  0003          OC      /0003     FORM 3                         8B007750
03EF 0  7001          MOX     BSP07     CONTINUE                       8B007760
03F0 0  7004          MOX     BSPOI     LOOP ON ERROR                  8B007770
03F1 00 4C0002F8 BSP07 BSC  L  WRT05     TERMINATE                      8B007780
                        *                                              8B007790
                        *                  CONSTANTS                   8B007800
                        *                                              8B007810
03F4    0000          BSS  E  0                                        8B007820
03F4 0  0403    BSPIO OC      /0403     BACKSPACE IOCC                 8B007830
03F5 0  0000          OC      0                                        8B007840
*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8B007850
                        *                                              8B007860
                        *                  REWINO ROUTINE              8B007870
                        *                                              8B007880
*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8B007890
03F6 0  0000    RWD   OC      0                              SE        8B007900
03F7 00 4400041E RW001 BSI  L  SNOSW     SENSE OR               SRC     8B007910
03F9 0  1B01          SRA     1                                        8BD07920
03FA 0  4B04          BSC     E         IS OR READY                    8B007930
03FB 0  7014          MOX     RW004     NO                             8B007940
03FC 0  1802          SRA     2                                        8B007950
03F0 0  4804          BSC     E         IS OR AT LO PT                 8B007960
03FE 0  700F          MOX     RW003     YES                            8B007970
03FF 00 C5000188      LO   L1 TAPEO     GET AREA COOE                  8B007980
0401 0  F01A          EOR     RWOIO     SET FNC                        8B007990
0402 0  001A          STO     RWOIO+1   SAVE                           8B008000
                        *                                              8B008010
0403 0  0818          XIO     RWOIO     ISSUE REWINO                   8B008020
                        *                                              8B008030
0404 0  300A    WAITA OC      /300A     WAIT FOR INTRPT                8B008040
                        *                                              8B008050
0405 00 4400041E RW002 BSI  L  SNOSW     SENSE OR               SRC     8B008060
0407 0  1801          SRA     1                                        8B008070
040B 0  4804          BSC     E         IS REWINO COMPLETE             8B008080
0409 0  70FB          MOX     RW002     NO                             8B008090
040A 0  1802          SRA     2                                        8B008100
040B 0  4B04          BSC     E         IS OR AT LO PT                 8B008110
040C 0  7001          MOX     RW003     YES                            8B008120
0400 0  70F7          MOX     RW002     NO                             8B008130
                        *                                              8B008140
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040E 00 4C8003F6  RW003 BSC  I  RWD        EXIT                          SX    88008150
                  *                                                            88008160
                  *                  DRIVE IS NOT READY                        88D08170
                  *                                                            88D08180
0410 00 C400023A  RW004 LO   L  OSW        GET SENSE WD                        88008190
0412 00 D4000438        STO  L  SNSV       SAVE                                88D08200
0414 00 4400043A        BSI  L  PRINT      PRINT-NOT READY               SRC   88008210
0416 0  E008            DC      /E008      ERROR 8                             88008220
0417 0  0003            DC      /0003      FORM 3                              88008230
0418 0  7001            MDX     RWD05      CONTINUE                            88D08240
0419 0  700D            MDX     RW001      LOOP ON ERROR                       88008250
041A 00 4C0002F8  RWD05 BSC  L  WRT05      TERMINATE                           88008260
                  *                                                            88008270
                  *                  CONSTANTS                                 88D08280
                  *                                                            88008290
041C      0000          BSS  E  0                                              88008300
041C 0    0404  RWDIO   OC      /0404      REWIND IOCC                         88008310
0410 0    0000          OC      0                                              88D08320
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D08330
                  *                                                            88008340
                  *                  ROUTINE TO SENSE DRIVE                    88008350
                  *                                                            88008360
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88008370
041E 0  0000  SNDSW OC      0                                          SE    88D08380
041F 0  6813        STX  3  SNOS3+1    SAVE IX 3                           88008390
0420 00 C40001C6  SNOS1 LO   L  EOIT       GET AREA CODE                       88D08400
0422 00 F50001C0        EOR  LI MOD        SET MODIFIER                        88D08410
0424 0  F011            EOR     SNS        SET SENSE FNC                       88D08420
0425 0  D011            STO     SNS+1      SAVE                                88D08430
0426 00 67000002        LOX  L3 2                                              88008440
0428 0  0800      SNDS2 XIO      SNS        ISSUE SENSE                         88D08450
0429 00 07000437        STD  L3 SNSV-1     SAVE                                88D08460
0428 0  73FF            MDX  3  -1         DECR IX                             88008470
042C 0  70F8            MDX     SNDS2      LOOP                                88D08480
0420 0  C00A            LO      SNSV       GET SECOND                          88008490
042E 0  F00A            EOR     SNSV+1     COMPARE WITH FIRST                  88008500
042F 0  4820            BSC     Z          IS DR FULLY SEL                     88D08510
0430 0  70EF            MDX     SNDS1      NO                                  88008520
0431 0  C006            LO      SNSV       GET SENSE WD                        88D08530
0432 00 67000000  SNDS3 LOX  L3 0          RESTORE IX 3                        88D08540
0434 00 4C80041E        BSC  I  SNDSW      EXIT                          SX    88008550
                  *                                                            88008560
                  *                  CONSTANTS                                 88D08570
                  *                                                            88008580
0436      0000          BSS  E  0                                              88008590
0436 0    0700  SNS     OC      /0700      SENSE IOCC                          88008600
0437 0    0000          DC      0                                              88008610
0438 0    0000  SNSV    DC      0          TEMP STORAGE                        88008620
0439 0    0000          OC      0                                              88008630
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88008640
                  *                                                            88008650
                  *                  COMMON PRINT ROUTINE                      88D08660
                  *                                                            88008670
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D08680
043A 0  0000  PRINT OC      0                                          SF    88008690
0438 00 6E0004E1        STX  L2 FRMC8+1    SAVE IX 2                           88008700
043D 00 6D0004DF        STX  L1 FRMC7+1    SAVE IX 1                           88008710
043F 00 0C0001C2        XIO  L  ROBSW      READ DATA SWS                       88D08720
0441 00 C40001CB        LD   L  SWD        GET DATA SWS                        88D08730
0443 0  1802            SRA     2                                              88D08740
0444 00 4C0404CE        BSC  L  FRMC4,E    BRANCH = BYPASS PR                  88D08750
0446 0  1010            SLA     16         CLEAR MSG WDS                       88008760
0447 00 040004F5        STO  L  MSG2                                           88D08770
0449 00 040004F6        STO  L  MSG3                                           88008780
0448 00 040004F4        STO  L  MSG1                                           88008790
044D 00 040004F8        STO  L  MSG                                            88008800
044F 00 D40004F7        STO  L  MSG4                                           88008810
0451 00 668004F1        LOX  I2 RIO        IX 2 = RTN NO                       88008820
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0453 00 C60001D3        LO   L2 CMRTT      GET RTN ADRS                        88008830
0455 00 D40004F2        STO  L  RAD        SAVE                                88D08840
0457 00 6680043A        LOX  I2 PRINT      IX 2 = ADRS OF CALL                 88008850
0459 0  C200            LD      2 0        GET MSG IO                          88D08860
045A 00 D40004F0        STO  L  MID        SAVE                                88008870
045C 0  C201            LO      2 1        GET FORM NO                         88D08880
045D 0  D003            STO     PR1+1                                          88D08890
045E 00 600004F3        STX  L1 UNIT       SAVE DR NO                          88D08900
0460 00 66000000  PR1   LDX  L2 0          IX 2 = FORM NO                      88D08910
0462 00 C6000487        LO   L2 FRWC       GET 1443 WD CT                      88D08920
0464 00 04000616        STO  L  PRWDC      SET                                 88D08930
0466 00 94000684        S    L  ONE        SUB 1                               88D08940
0468 00 D40004AE        STO  L  STWC+1     SAVE                                88D08950
046A 00 C600048C        LO   L2 FRST       GET MSG WD CT                       88D08960
046C 00 04000480        STO  L  STWC+3     SAVE                                88D08970
046E 0  C010            LO      LOGX0      RESTORE RTN                         88D08980
046F 0  0042            STO     FRMC2+1                                        88D08990
0470 0  C0F0            LO      PR1+1      GET FORM NO                         88D09000
0471 0  4810            BSC     -          IS IT NOT LINE 0                    88D09010
0472 0  700A            MDX     PR05       NO                                  88D09020
0473 0  1001            SLA     1          CLEAR BIT 0                         88D09030
0474 0  1801            SRA     1                                              88D09040
0475 0  0001            STO     PR04+1                                         88D09050
0476 00 66000000  PR04  LDX  L2 0          SAVE                                88D09060
0478 0  C008            LO      LOGX2      IX 2 = FORM NO                      88D09070
0479 00 04000480        STO  L  STWC+3     SET FOR NOT LINE 0                  88D09080
047B 0  C004            LD      LOGX1                                          88D09090
047C 0  0035            STO     FRMC2+1                                        88D09100
0470 00 4E800482  PR05  BSC  I2 FORM       GO TO FORM                          88D09110
047F 0  04EE      LOGX0 DC      PID-1      LINE 0 CONSTANT                     88D09120
0480 0  04F2      LOGX1 DC      UNIT-1     NOT LINE 0 CONSTANT                 88D09130
0481 0  0005      LOGX2 DC      5          NOT LINE 0 WD CT                    88D09140
                  *                                                            88D09150
                  *                  FORM ADDRESSES                            88D09160
                  *                                                            88D09170
0482 0  0000      FORM  DC      0                                              88D09180
0483 0  0491            DC      FORM1                                          88D09190
0484 0  049E            DC      FORM2                                          88D09200
0485 0  049F            DC      FORM3                                          88D09210
0486 0  04A3            DC      FORM4                                          88D09220
0487 0  0000      FRWC  DC      0                                              88D09230
0488 0  001A            DC      26         WD CT FORM 1                        88D09240
0489 0  000E            DC      14                 2                           88D09250
048A 0  0011            DC      17                 3                           88D09260
048B 0  0011            DC      17                 4                           88D09270
048C 0  0000      FRST  DC      0                                              88D09280
048D 0  0009            DC      9          MSG LNGTH FORM 1                    88D09290
048E 0  0005            DC      5                  2                           88D09300
048F 0  0006            DC      6                  3                           88D09310
0490 0  0006            DC      6                  4                           88D09320
                  *                                                            88D09330
                  *                                                            88D09340
0491 00 C40006E2  FORM1 LO   L  PRPAT      GET EXPECTED DATA                   88D09350
0493 0  0060            STO     MSG1       SAVE                                88D09360
0494 00 C7000941        LD   L3 IOAA+8     GET DATA RECEIVED                   88D09370
0496 0  D05E            STO     MSG2       SAVE                                88D09380
0497 00 C4000685        LO   L  WDCT       GET WD NO IN ERROR                  88D09390
0499 0  D05C            STO     MSG3       SAVE                                88D09400
049A 00 C4000686        LO   L  MSG4T      GET TRK IN ERROR                    88D09410
049C 00 D40004F7        STO  L  MSG4       SET                                 88D09420
049E 0  7007      FORM2 MDX     FORMC      GO TO COMMON RTN                    88D09430
                  *                                                            88D09440
                  *                                                            88D09450
049F 00 C4000438  FORM3 LO   L  SNSV       GET SENSE WORD                      88D09460
04A1 0  0052            STO     MSG1       SAVE                                88D09470
04A2 0  7003            MDX     FORMC      GO TO COMMON RTN                    88D09480
                  *                                                            88D09490
                  *                                                            88D09500
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04A3 0D C4D00328    FORM4 LD   L  WRERR      GET NO OF RETRYS          88009510
04A5 0  D04E              STO     MSG1       SAVE                      88D09520
                      *                                                88009530
                      *                 COMMON ROUTINE                 88009540
                      *                                                88DD9550
04A6 00 6600001A    FORMC LDX  L2 26          IX 2 = LNGTH MSG          88009560
04A8 0  1010              SLA     16                                    88D09570
04A9 00 D6DD04F8    FRMC1 STO  L2 MSGO-1      CLEAR MSG AREA            88009580
04AB 0  72FF              MOX    2 -1                                   88DD9590
04AC 0  70FC              MDX     FRMC1                                 88D09600
                      *                                                88009610
04AD 00 650D0000    STWC  LOX  L1 0           SET IXING                 88D09620
04AF 0D 66000000          LOX  L2 0                                     88009630
0481 00 C60004EE    FRMC2 LD   L2 PID-1       GET A WORD                88D0964D
04B3 0D D40005D6          STO  L  HEXWO       SET IN CONV RTN           88D0965D
0485 00 4400D584          BSI  L  HEXCV       CONVERT TO HEX       SRC  88DD966D
04B7 00 CC0D050C          LDD  L  HEXCD       GET CONVERTED WO          88D0967D
0489 00 D50004F8          STO  L1 MSGO-1      SET IN MSG                88009680
04B8 0  18D0              RTE     I6          MOVE Q TO A               88D09690
04BC 00 D50004F9          STO  L1 MSGO        SET IN MSG                88009700
04BE 0  71FD              MDX    1 -3         OECR IX 1                 88D09710
04BF 0  1D00              NOP                                           88DD9720
04C0 0  72FF              MDX    2 -1         OECR IX 2                 88009730
04C1 0  7DEF              MDX     FRMC2       LOOP                      88D09740
                      *                                                88009750
04C2 00 0C0001C2          XIO  L  RDBSW       READ DATA SWS             88009760
04C4 00 C40D01C8          LD   L  SWD         GET SWS                   88DD9770
04C6 0  10D9              SLA     9                                     88DD9780
04C7 0  4828              BSC     +Z          IS 1443 TO BE USED        88DD9790
04C8 0  7003              MOX     FRMC3       YES                       88DD9800
04C9 00 440D0514          BSI  L  LOGC        GO TO TYPEWRITER     SRC  88DD98I0
04CB 0  7002              MOX     FRMC4                                 88DD9820
04CC D0 440D05EE    FRMC3 BSI  L  PR43        GO TO 1443           SRC  88DD9830
04CE DD 0C0001C2    FRMC4 XIO  L  RDBSW       READ DATA SWS             88DD9840
04D0 00 C4D001C8          LD   L  SWO         GET SWS                   88DD9850
0402 0  18D1              SRA     1                                     88DD9860
04D3 0  4804              BSC     E           IS HALT ON ERROR ON       88009870
04D4 0  700F              MOX     FRMC6       YES                       88DD988D
                      *                                                88009890
04D5 00 0CDD01C2    FRMC5 XIO  L  RO8SW       READ DATA SWS             88DD9900
04D7 D0 C400D1CB          LD   L  SWO         GET SWS                   88DD9910
04D9 0  1803              SRA     3                                     88DD9920
04DA 0  4804              BSC     E           IS LOOP ON ERROR ON       880D9930
04D8 D  7D0F              MDX     FRMC9       YES                       88DD9940
04DC 00 7402043A          MDX  L  PRINT,2     SET RETURN TO CONT        88DD995D
04DE DD 65D0000D    FRMC7 LOX  L1 0           RESTORE IX 1              88009960
04ED D0 660D000D    FRMC8 LOX  L2 D           RESTORE IX ?              88DD997D
04E2 0D 4C8DD43A          BSC  I  PRINT       EXIT                 SX   88009980
                      *                                                88DD9990
                      *              HALT ON ERROR SW IS ON            88D10D00
                      *                                                88D1D01D
04E4 0  C008        FRMC6 LD       MID        GET MSG IO                88D10020
04E5 0  180C              SRA     12                                    88010030
04E6 0  F0D7              EOR     ERRR                                  88D10D4D
04E7 0  4820              BSC     Z           IS THIS AN ERROR          88D10D5D
04E8 0  70EC              MDX     FRMC5       NO                        88D10060
04E9 0  3008        WAITB OC      /3D08       ERROR WAIT                88D10070
04EA 0  70EA              MDX     FRMC5                                 88010080
                      *                                                88D10090
                      *              LOOP ON ERROR SW IS ON            88DI0100
                      *                                                88010110
04EB D0 7403043A    FRMC9 MOX  L  PRINT,3     SET RETURN TO LOOP        88D1012D
04ED 0  7DF0              MDX     FRMC7                                 88D10130
                      *                                                88010140
                      *                 CONSTANTS                      88010150
                      *                                                88D10160
04EE 0  000E        ERRR  OC      /0D0E       ERROR CK                  88D10170
04EF 0  8DD0        PID   DC      /8000       PROGRAM IO                88D10180
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04F0 0  0000        MIO   OC      0           MESSAGE IO                88010190
04F1 0  0000        RIO   OC      0           ROUTINE NUMBER            88010200
04F2 0  D000        RAO   OC      0           ROUTINE AOORESS           88010210
04F3 0  0000        UNIT  OC      0           UNIT NUMBER               88010220
04F4 0  D000        MSG1  OC      0           MOOIFIER1                 88010230
04F5 0  0000        MSG2  OC      0                 2                   88010240
04F6 D  DDD0        MSG3  OC      0                 3                   88010250
04F7 0  0000        MSG4  OC      0                 4                   88010260
                      *                                                88010270
                      *                                                88010280
                      *                OUTPUT MSG AREA                 88010290
                      *                                                88D10300
04F8 0  0000        MSG   OC      0           WO CT OR CAR RET          8801031D
04F9 0  D000        MSGO  OC      D           OUTPUT MSG AREA           88010320
04FA    0019              BSS     25                                    88D10330
0513 0  FFFF        TERM  OC      /FFFF       TERMINATOR                88010340
                      *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   8801035D
                      *                                                88010360
                      *                ROUTINE TO CONVERT PRINTER      88D10370
                      *                PACKED CODE TO PACKED TYPE      88D10380
                      *                                                88010390
                      *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   88D10400
0514 0  D000        LOGC  OC      0                                 SE  88D10410
0515 0  1010              SLA     16                                    88D10420
0516 0  D039              STO     LOX00       CLEAR HALF WD SW          88D10430
0517 0  C068              LD      PRSP        SET CARRIAGE RETURN       88D10440
D518 D0 D40D04F8          STO  L  MSG                                   88D10450
051A 0  692E              STX    1 LOGC7+1    SAVE IX 1                 88D10460
051B 0  6A2F              STX    2 LOGC8+1    SAVE IX 2                 88D10470
051C 0  6830              STX    3 LOGC9+1    SAVE IX 3                 88D10480
051D 00 670004F9          LDX  L3 MSGO        IX 3 = ADRS OF MSG        88D10490
051F 0  C300        LOGC1 LD     3 0          GET WO TO CONVERT         88D10500
D520 0  D030              STO     LOX02       SAVE                      88D10510
0521 D0 F4000513          EOR  L  TERM                                  88D10520
0523 0  4818              BSC     +-          IS IT A TERM              88D10530
0524 0  7021              MDX     LOGCO       YES                       88D10540
0525 0  C02B        LOGC2 LO      LOX02       GET WO                    88010550
0526 0  180C              SRA     12          SAVE ZONE                 88010560
0527 0  D001              STO     LOGC3+1                               88010570
0528 00 65DD000D    LOGC3 LOX  L1 0           IX 1 = ZONE               88D1D58D
052A D0 C5000553          LO   L1 LOX04       GET ADRS OF ZONE          88D10590
052C 0  D007              STO     LOGC5+1     SAVE                      88010600
0520 0  C023              LO      LOX02       GET WD TO CONVERT         88010610
052E 0  10D4              SLA     4           SAVE POSITION             88D10620
052F 0  180C              SRA     12                                    88D10630
0530 0  D001              STO     LOGC4+1                               88D10640
D531 DD 660DDD00    LOGC4 LDX  L2 D           IX 2 = POSITION           88010650
D533 D0 C6D00000    LOGC5 LD   L2 D           GET TYPEWRITER COOE       88D1066D
D535 D0 74000550          MDX  L  LOX00,0     IS THIS FIRST HALF        88010670
0537 0  7007              MOX     LOGC6       NO                        88D10680
0538 0  0019              STO     LOX03       YES                       88D10690
0539 00 74010550          MDX  L  LOX0D,1     SET TO SECOND HALF        88D1070D
0538 0  CD15              LD      LOXD2       GET WO TO CONVERT         88D1071C
D53C D  10D8              SLA     8           SET TO SECONO HALF        88010720
053D 0  D013              STO     LOX02       SAVE                      88D1D730
053E 0  70E6              MDX     LOGC2       GO CONVERT                88010740
                      *                                                88D10750
                      *              SECONO HALF WORD                  88010760
                      *                                                88D10770
053F 0  1808        LOGC6 SRA     8           MOVE TO SECONO HALF       88D1D780
0540 0  F011              EOR     LOX03       COMBINE WITH FIRST        88D1079D
0541 0  D3D0        LOGC8 STO  3 0            SET IN MSG                88010800
0542 0  1010              SLA     16                                    88010810
0543 0  D00C              STO     LOX00       SET TO FIRST HALF         88010820
0544 0  7301              MDX  3 1            IX 3 = NEXT WD            88010830
0545 0  70D9              MOX     LOGC1       CONVERT NEXT WD           88010840
                      *                                                88010850
                      *              FOUND A TERMINATOR                88D10860
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                        *
0546 00 4C000584        LOGCO BSC  L  LOG00      GO PRINT                        8BD10870
0548 00 65000000        LOGC7 LDX  L1 0          RESTORE IX 1                    8BD10880
054A 00 66000000        LOGC8 LDX  L2 0          RESTORE IX 2                    8BD10890
054C 00 67000000        LOGC9 LDX  L3 0          RESTORE IX 3                    8BD10900
054E 0D 4C800514              BSC  I  LOGC       EXIT                        SX  8BD10910
                        *                                                       8BD10920
                        *                CONSTANTS                              8BD10930
                        *                                                       8BD10940
0550 0  0000            LOX00 DC       0         HALF WORD SW                    8BD10950
0551 0  0000            LOX02 DC       0         TEMP STORAGE FOR                8BD10960
                        *                        WORD TO CONVERT                8BD10970
0552 0  0000            LOX03 DC       0         TEMP STORAGE FOR                8BD10980
                        *                        TYPEWRITER CODE                8BD10990
0553 0  0559            LOX04 DC       PR00      ADRS OF ZONE 0                  8BD11000
0554 0  0562                  DC       PR01-2    ADRS OF ZONE 1                  8BD11010
0555 0  056D                  DC       PR02      ADRS OF ZONE 2                  8BD11020
0556 0  0579                  DC       PR03-1    ADRS OF ZONE 3                  8BD11030
                        *                                                       8BD11040
                        *                                                       8BD11050
                        *                                                       8BD11060
0557 0  C02B            LOGCA LD       PRSP      GET CARRIAGE RETURN             8BD11070
0558 0  70E8                  MDX      LOGCB                                     8BD11080
                        *                                                       8BD11090
                        *                PRINTER CODE TO TYPEWRITER             8BD11100
                        *                CODE CONVERSION TABLE                  8BD11110
                        *                                                       8BD11120
0559 0  2100            PR00  DC       /2100     BLANK                           8BD11130
055A 0  FC00                  DC       /FC00     1                               8BD11140
055B 0  D800                  DC       /D800     2                               8BD11150
055C 0  DC00                  DC       /DC00     3                               8BD11160
055D 0  F000                  DC       /F000     4                               8BD11170
055E 0  F40D                  DC       /F400     5                               8BD11180
055F 0  D000                  DC       /D000     6                               8BD11190
0560 0  D400                  DC       /D400     7                               8BD11200
0561 0  E400                  DC       /E400     8                               8BD11210
0562 0  E000                  DC       /E000     9                               8BD11220
0563 0  C400                  DC       /C400     0                               8BD11230
0564 0  9A00            PR01  DC       /9A00     S                               8BD11240
0565 0  9E00                  DC       /9E00     T                               8BD11250
0566 0  B200                  DC       /B200     U                               8BD11260
0567 0  B600                  DC       /B600     V                               8BD11270
0568 0  920D                  DC       /9200     W                               8BD11280
0569 0  9600                  DC       /9600     X                               8BD11290
056A 0  A600                  DC       /A600     Y                               8BD11300
056B 0  A200                  DC       /A200     Z                               8BD11310
056C 0  2100                  DC       /2100     BLANK                           8BD11320
056D 0  BE00            PR02  DC       /BE00     -                               8BD11330
056E 0  7E00                  DC       /7E00     J                               8BD11340
056F 0  5A00                  DC       /5A00     K                               8BD11350
0570 0  5E00                  DC       /5E00     L                               8BD11360
0571 0  7200                  DC       /7200     M                               8BD11370
0572 0  7600                  DC       /7600     N                               8BD11380
0573 0  5200                  DC       /5200     O                               8BD11390
0574 0  5600                  DC       /5600     P                               8BD11400
0575 0  6600                  DC       /6600     Q                               8BD11410
0576 0  6200                  DC       /6200     R                               8BD11420
0577 0  4200                  DC       /4200                                     8BD11430
0578 0  4000                  DC       /4000     $                               8BD11440
0579 0  D600                  DC       /D600     *                               8BD11450
057A 0  3E00            PR03  DC       /3E00     A                               8BD11460
057B 0  1A00                  DC       /1A00     B                               8BD11470
057C 0  1E00                  DC       /1E00     C                               8BD11480
057D 0  3200                  DC       /3200     D                               8BD11490
057E 0  3600                  DC       /3600     E                               8BD11500
057F 0  1200                  DC       /1200     F                               8BD11510
0580 0  1600                  DC       /1600     G                               8BD11520
0581 0  2600                  DC       /2600     H                               8BD11530
                                                                                8BD11540
```



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0582 0  2200                  DC       /2200     I                               8BD11550
0583 0  8121            PRSP  DC       /8121     CARRIAGE RETURN                 8BD11560
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD11570
                        *                                                       8BD11580
                        *                TYPEWRITER ROUTINE                     8BD11590
                        *                                                       8BD11600
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD11610
0584 0  082B            LOG00 XIO      SENSE     SENSE FOR READY                 8BD11620
0585 0  180A                  SRA      10                                        8BD11630
0586 0  4804                  BSC      E         IS TYPEWRITER READY             8BD11640
                        *                                                       8BD11650
0587 0  300C            WAITC DC       /300C     NOT READY                       8BD11660
0588 00 0C00060C              XIO  L   MASK0     MASK ALL LVLS                   8BD11670
058A 00 0C00060E              XIO  L   MASK1                                     8BD11680
058C 0  101D                  SLA      16                                        8BD11690
058D 0  D025                  STO      WRDSW     CLEAR HALF WD SW                8BD11700
058E 0  6300                  LDX   3  0                                         8BD11710
                        *                                                       8BD11720
058F 00 C70004F8        LOG01 LD   L3  MSG       GET PRINT WD                    8BD11730
0591 0  D020                  STO      IOARA     SET IN OUTPUT AREA              8BD11740
                        *                                                       8BD11750
0592 00 F4000513              EOR  L   TERM      CK FOR TERMINATOR               8BD11760
0594 00 4C1805A8              BSC  L   LOG02,+-  EXIT                            8BD11770
                        *                                                       8BD11780
                        *                OUTPUT A CHARACTER                     8BD11790
                        *                                                       8BD11800
0596 0  0817            XIOWR XIO      WRITE     WRITE CHARACTER                 8BD11810
                        *                                                       8BD11820
0597 0  0818            XIOSN XIO      SENSE     CHECK BUSY                      8BD11830
                        *                                                       8BD11840
0598 0  180B                  SRA      11                                        8BD11850
0599 0  4804                  BSC      E         IS TYPEWRITER BUSY              8BD11860
059A 0  70FC                  MDX      XIOSN     BUSY                            8BD11870
                        *                                                       8BD11880
                        *                                                       8BD11890
                        *                CHECK FOR 1ST 1/2 WORD                 8BD11900
                        *                                                       8BD11910
059B 0  C017                  LD       WRDSW     GET 1/2 WORD SWITCH             8BD11920
059C 0  4804                  BSC      E                                         8BD11930
059D 0  7006                  MDX      LOG03     GO SETUP FOR NEXT WD            8BD11940
                        *                                                       8BD11950
                        *                                                       8BD11960
                        *                SET UP FOR 2ND 1/2 WORD                8BD11970
                        *                                                       8BD11980
059E 0  C013                  LD       IOARA     GET WORD IN IO AREA             8BD11990
059F 0  1008                  SLA      8         POSITION 2ND 1/2 WD             8BD12000
05A0 0  D011                  STO      IOARA                                     8BD12010
05A1 00 74010583              MDX  L   WRDSW,1   BUMP WORD SWITCH               8BD12020
05A3 0  70F2                  MDX      XIOWR     GO WRITE 2ND 1/2 WD             8BD12030
                        *                                                       8BD12040
                        *                SET UP FOR NEXT WORD                   8BD12050
                        *                                                       8BD12060
05A4 0  7301            LOG03 MDX   3  1         NEXT WORD INDEX                 8BD12070
05A5 00 74010583              MDX  L   WRDSW,1   BUMP WORD SW                    8BD12080
05A7 0  70E7                  MDX      LOG01     GO GET NEXT WORD                8BD12090
                        *                                                       8BD12100
                        *                                                       8BD12110
05A8 00 0C000610        LOG02 XIO  L   UNMK3     UNMASK ALL LVLS                 8BD12120
05AA 00 0C000612              XIO  L   UNMK4                                     8BD12130
05AC 00 4C000548              BSC  L   LOGC7     EXIT                        SX  8BD12140
                        *                                                       8BD12150
                        *                CONSTANTS                              8BD12160
                        *                                                       8BD12170
05AE    0000                  BSS  E   0                                        8BD12180
05AE 0  0982            WRITE DC       IOARA     WRITE IOCC                      8BD12190
05AF 0  0902                  DC       /0902                                     8BD12200
05B0 0  0000            SENSE DC       /0000     SENSE IOCC                      8BD12210
05B1 0  0F03                  DC       /0F03                                     8BD12220
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0582 0  0000      IOARA DC      D          OUTPUT AREA                    88012230
0583 0  DD00      WRDSW DC      D          HALF WORD SW                   88012240
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88012250
                  *                                                      88012260
                  *                 HEXADECIMAL CONVERSION               88012270
                  *                                                      88D12280
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88D12290
0584 0  0000      HEXCV OC      0                                   SE   88D1230D
0585 D0 6E0D0501        STX   L2 HEXC2+1    SAVE IX 2                      88012310
0587 DD 6F000503        STX   L3 HEXC3+1    SAVE IX 3                      88012320
0589 0  6204            LDX    2 4          CONVERSION INDEX               88012330
058A 0  C01B            LO     HEXWO        GET WORD TO CONVERT            88012340
058B 0  1890            SRT    16           SET IN Q                       88D1235D
058C 0  1D10            SLA    16           CLEAR A                        88012360
058D 0  1D84      HEXC1 SLT    4            GET CHARACTER                  8801237D
058E 0  0DD1            STD    HEXC1+3                                     88012380
058F 00 67D00000        LDX   L3 0          SET CODE TABLE INDEX           88D12390
                  *                                                      88012400
05C1 D0 C7DD050E        LD    L3 CODEH      GET CHARACTER                  8801241D
05C3 DD 06D00506        STO   L2 HEXDO-1    SAVE                           88D12420
05C5 0  101D            SLA    16                                          88012430
                  *                                                      88012440
05C6 0  72FF            MDX    2 -1         CHECK IF DONE                  88012450
05C7 0  70F5            MDX    HEXC1                                       88012460
                  *                                                      88D12470
05C8 0  C011            LD     HEXOO+3      PACK CODED WORDS               88D12480
05C9 0  1DD8            SLA    8                                           88012490
05CA 0  E80E            OR     HEXDO+2                                     88012500
05CB 0  0010            STO    HEXCO                                       8801251D
05CC 0  C00B            LO     HEXOO+1                                     8801252D
05CD 0  10D8            SLA    8                                           8801253D
05CE 0  E808            OR     HEXOD                                       88012540
05CF 0  0000            STO    HEXCO+1                                     88012550
05D0 D0 66D0D0DD  HEXC2 LOX   L2 0          RESTORE IX 2                   88D12560
0502 00 67D00000  HEXC3 LDX   L3 0          RESTORE IX 3                   88D12570
0504 DD 4C800584        BSC   I  HEXCV      RETURN TO USER           SX    88012580
                  *                                                      88012590
                  *                 CONSTANTS                            88012600
                  *                                                      88012610
0506 0  0DD0      HEXWD DC      0          WORD TO CONVERT                88D1262D
0507 0  000D      HEXDO OC      D          *                              88012630
0508 0  0000            OC      0          * UNPACKED CODED               88012640
0509 0  00D0            DC      0          * WORD                         88012650
05DA 0  0000            DC      0          *                              88D12660
                  *                                                      88012670
050C    000D            BSS   E 0                                         88012680
                  *                                                      88012690
050C 0  0000      HEXCD OC      0          * PACKED CODED WORD            8801270D
05D0 0  00D0            OC      D          *                              8801271D
                  *                                                      8801272D
                  *                 CONVERSION TABLE                     86012730
                  *                                                      88D12740
050E 0  00DA      COOEH DC      /000A      0                              88D1275D
050F D  0D01            DC      /0001      1                              8801276D
05E0 0  00D2            OC      /0002      2                              88D12770
05E1 0  0003            OC      /0003      3                              8801278D
05E2 0  0004            DC      /0004      4                              88012790
05E3 0  DD05            OC      /0005      5                              88D12800
05E4 0  0006            DC      /0DD6      6                              88D12810
05E5 0  0007            DC      /0D07      7                              88D12820
05E6 0  0008            DC      /0008      8                              88012830
05E7 0  0009            DC      /0D09      9                              88012840
05E8 D  0031            DC      /0D31      A                              8801285D
05E9 0  0032            OC      /0D32      B                              88012860
05EA 0  0033            DC      /0033      C                              88012870
05EB 0  0034            DC      /0034      0                              88D12880
05EC D  0D35            DC      /0D35      E                              88D12890
05E0 0  0036            OC      /0D36      F                              880129D0
```



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                  *                                                      88012910
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88012920
                  *                                                      88012930
                  *                 PRINT ON 1443 PRINTER                88012940
                  *                                                      88012950
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88012960
05EE 0  0DD0      PR43  OC      D                                   SE   88012970
05EF 0  C01A            LD      SNSPR      GET SENSE IOCC                 88012980
05F0 0  D01A            STO     SNSPR+1    SET                            88D12990
05F1 0  C024            LO      PRWOC                                     88D13000
05F2 00 D4D004F8        STO   L MSG        SET WD CT                      88013010
05F4 0  0817            XIO     MASKO      MASK ALL LEVELS                88D13020
05F5 0  0818            XIO     MASK1                                     88013030
                  *                                                      88013040
05F6 0  0813            XIO     SNSPR      CK FOR PRINTER READY           88013050
05F7 0  4804            BSC     E                                         88013060
05F8 0  30DD      WAITD DC      /30DD      PRINTER IS NOT READY           88013070
05F9 0  081A            XIO     WRPR       WRITE                          88013080
                  *                                                      8801309D
05FA 0  08DF      PR431 XIO     SNSPR      WAIT FOR NOT COMPLTE           88013100
05FB 0  1002            SLA     2                                         88013110
05FC 0  4810            BSC     -          IS PRINTER COMPLETE            88D13120
05F0 0  7DFC            MDX     PR431      NO                             88013130
                  *                                                      88013140
05FE 0  CD0C            LD      SNSPR+1    GET IOCC                       88013150
05FF DD F4DDD684        EDR   L DNE        SET BIT 15                     88013160
0601 0  0D09            STD     SNSPR+1    SAVE                           88013170
                  *                                                      88013180
0602 0  0807      PR432 XIO     SNSPR      SENSE                          88D13190
06D3 0  1801            SRA     1                                         88013200
0604 0  4804            BSC     E          IS PRINTER BUSY                88013210
0605 0  70FC            MDX     PR432      YES                            88D13220
                  *                                                      88D13230
0606 0  0809            XID     UNMK3      UNMASK ALL LEVELS              88013240
0607 0  080A            XIO     UNMK4                                     88013250
                  *                                                      88013260
0608 00 4C8005EE        BSC   I PR43       EXIT                      SX   88013270
                  *                                                      88013280
                  *                 CONSTANTS                            88013290
                  *                                                      88013300
060A    0000            BSS   E 0                                         88013310
060A 0  3700      SNSPR DC      /3700      SENSE IOCC                     88013320
0608 0  00D0            OC      0                                         88D13330
                  *                                                      88013340
060C 0  FFFF      MASKD OC      /FFFF      MASK IOCCS                     88013350
060D 0  048D            DC      /048D                                     88D13360
060E 0  FFFF      MASK1 DC      /FFFF                                     88D13370
060F 0  0481            DC      /0481                                     88D13380
                  *                                                      88013390
D610 0  0D00      UNMK3 DC      0          UNMASK IOCCS                   88013400
0611 0  048D            OC      /0480                                     88D13410
0612 D  00D0      UNMK4 OC      0                                         88D13420
0613 0  0481            DC      /0481                                     88013430
                  *                                                      88013440
0614 0  04F8      WRPR  OC      MSG        WRITE IOCC                     88D13450
0615 0  350D            DC      /3500                                     88013460
0616 0  DD17      PRWDC DC      23         WORD COUNT                     88013470
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88D13480
                  *                                                      88D13490
                  *                 OESELECT DRIVE ROUTINE               88013500
                  *                                                      88013510
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88D13520
0617 D  000D      OSLT  DC      D                                   SE   88D13530
0618 0  C009            LD      OSL        GET MDD                        88013540
0619 D0 F5000188        EDR   L1 TAPE0     SET IDCC                       88013550
0618 0  DDD7            STD     DSL+1      SAVE                           88D13560
061C 0  0805            XID     OSL        SENSE DRIVE                    88013570
0610 0  10D0            NOP                                               88013580
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061E 0  1000            NOP
061F 0  0802            XIO     DSL         SENSE DEVICE
0620 00 4C800617        BSC  I  DSLT        EXIT                        SX
                        *
                        *                   CONSTANTS
                        *
0622    0000            BSS  E  0
0622 0  0720            DSL     DC      /0720       SENSE IOCC
0623 0  0000            DC      0
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                   TESTING ROUTINES 1 THROUGH 7
                        *
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0624 0  6B07            CMRT    STX   3 CMRT3+1     SAVE IX 3
0625 0  1010                    SLA     16          ZERO A REG
0626 0  D05C                    STO     DECTR       CLEAR ODD-EVEN CTR
0627 00 6600FFFB                LOX   L2 -B         IX 2 = NO. WDS
0629 00 4400028E        CMRT0 BSI   L   SP7F        GO SET I/O AREA         SRC
062B 00 67000000        CMRT3 LDX   L3 0            RESTORE IX 3
062D 0  C055                    LD      DECTR       GET ODD EVEN CTR
062E 00 840C06B4                A     L ONE         ADD ONE
0630 0  D052                    STO     OECTR       SAVE
0631 0  4804                    BSC     E           IS CTR EVEN
0632 0  702F                    MOX     CMRT2       NO
0633 00 C7000679                LD    L3 TR1-1      GET BAD TRACK CONST
0635 00 F6000941        CMRT1 EOR   L2 IOAA+8       SET
0637 00 D6000941                STO   L2 IOAA+8
0639 0  6B07                    STX     3 CMRTF+1   SAVE IX 3
063A 00 440002D4                BSI   L WRT         GO WRITE                  SRC
                        *
063C 00 440003C4                BSI   L BSP         GO BACKSPACE              SRC
063E 00 440003C4                BSI   L BSP         GO BACKSPACE              SRC
0640 00 67000000        CMRTF LDX   L3 0            RESTORE IX 3
0642 00 4400032C                BSI   L RD          GO READ                   SRC
0644 00 440003C4                BSI   L BSP         GO BACKSPACE              SRC
                        *
                        *                   CHECK DATA
                        *
0646 00 C4000684        CMRT6 LD    L   ONE         GET 1
0648 0  D03C                  STD       WDCT        SET AS WD CT
0649 00 6F000686              STX   L3 MSG4T        SET TRK
064B 0  6B0E                  STX     3 CMRTB+1     SAVE IX 3
064C 0  C03A                  LD        LNE0        SET LINE 0
064D 0  D01F                  STO       CMRT9
064E 0  63F8                  LDX     3 -B          IX 3 = NO WDS
064F 00 C7000941        CMRTC LD    L3 IDAA+8       GET A DATA WD
0651 00 F40002A3              EOR   L P7F
0653 0  4820                  BSC       Z           IS WD CORRECT
0654 0  7011                  MOX       CMRTB       NO
0655 00 74010685        CMRT0 MDX   L WDCT,1        INCR WD CT
0657 0  7301                  MDX     3 1           DECR IX 3
0658 0  70F6                  MOX       CMRTC       LOOP
0659 00 07000000        CMRTB LDX   L3 0            RESTORE IX 3
                        *
                        *                   CHECK FOR ROUTINE COMPLETE
                        *
065B 0  C027            CMRTE LD        OECTR       GET ODD EVEN CTR
065C 0  4804                  BSC       E           IS IT EVEN
065D 0  70CB                  MDX       CMRT0       NO
065E 0  7201                  MDX     2 1           DECR IX 2
065F 0  70C9                  MDX       CMRT0       CONTINUE RTN
0660 00 4C0001EA        CMRT5 BSC   L   RETRN       RTN EXIT
                        *
                        *                   ODD EVEN CTR IS DDD
                        *
0662 00 C7000679        CMRT2 LD    L3 TR1-1        GET BAD TR CONSTANT
0664 0  100B                  SLA       B           MOVE TO FIRST CHAR
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8BD13590
8BD13600
8BD13610
8BD13620
8BD13630
8BD13640
8BD13650
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8BD13670
8BD13680
8BD13690
8BD13700
8BD13710
8BD13720
8BD13730
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8BD13790
8BD13800
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8BD13990
8BD14000
8BD14010
8BD14020
8BD14030
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8BD14070
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8BD14090
8BD14100
8BD14110
8BD14120
8BD14130
8BD14140
8BD14150
8BD14160
8BD14170
8BD14180
8BD14190
8BD14200
8BD14210
8BD14220
8BD14230
8BD14240
8BD14250
8BD14260
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```
0665 0  70CF            MDX     CMRT1
                        *
                        *                   DATA NOT CORRECT
                        *
0666 00 C40002A3        CMRTB LD    L   P7F         GET EXPECTED
0668 00 D40006E2              STD   L   PRPAT       SAVE
066A 00 4400043A              BSI   L   PRINT       GO PRINT                  SRC
066C 0  E001                  DC      /E001       ERROR 1
066D 0  0001            CMRT9 DC      /0001       FORM 1
066E 0  7001                  MDX     CMRT7       CONTINUE
066F 0  70D0                  MOX     CMRTF       LOOP ON ERROR
0670 0  C017            CMRT7 LO      LNE1        SET NOT LINE 0
0671 0  D0F8                  STO     CMRT9
0672 00 0C0001C2              XIO   L RDBSW       READ DATA SWS
0674 00 C40001CB              LD    L SW0         GET SWS
0676 0  1007                  SLA     7
0677 0  4810                  BSC     -           IS PRINT ONLY 1 ON
0678 0  70DC                  MDX     CMRTD       NO
0679 0  70DF                  MDX     CMRT8       YES
                        *
                        *                   CONSTANTS
                        *
067A 0  0040            TR1   OC      /0040       CHARACTER-TRACK 1
067B 0  0020            TR2   DC      /0020                       2
067C 0  0010            TR3   DC      /0010                       3
067D 0  0008            TR4   DC      /0008                       4
067E 0  0004            TR5   OC      /0004                       5
067F 0  0002            TR6   OC      /0002                       6
0680 0  0001            TR7   DC      /0001                       7
0681 0  BC0F            OSWEX DC      /8C0F       ERROR EXPECTED
0682 0  BF9F            DSWCR DC      /BF9F       CORRECTED EXPECTED
0683 0  0000            OECTR DC      0           ODD-EVEN CTR
0684 0  0001            ONE   DC      1           CONSTANT 1
0685 0  0000            WDCT  DC      0           WORD IN ERROR COUNT
0686 0  0000            MSG4T DC      0           TRACK IN ERROR STORE
0687 0  0001            LNE0  DC      /0001
0688 0  8001            LNE1  DC      /8001
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                   TESTING RDUTINE B
                        *
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0689 0  6B0B            RTN8  STX   3 RTN8B+1       SAVE IX 3
068A 0  1010                  SLA     16          CLEAR ODD EVEN CTR
068B 00 D4000683              STO   L OECTR
0680 00 6600FFF8              LDX   L2 -B         IX 2 = NUMBER WORDS
068F 00 440002A5        RTNBA BSI   L   SP8F        GO SET I/D AREA           SRC
0691 00 67000000        RTNBB LOX   L3 0            RESTORE IX 3
0693 00 C4000683              LD    L DECTR       GET ODD/EVEN CTR
0695 00 B4000684              A     L ONE         ADD 1
0697 00 D4000683              STO   L DECTR       SAVE
0699 0  4804                  BSC     E           IS CTR EVEN
069A 0  702E                  MDX     RTNBM       NO
069B 0  C044                  LD      TR0         GET BAD TR CONSTANT
069C 00 F6000941        RTNBC EDR   L2 IDAA+8       SET BAD CHARACTER
069E 00 06000941              STO   L2 IDAA+8
                        *
06A0 00 440002D4              BSI   L WRT         GO WRITE                  SRC
                        *
06A2 00 440003C4              BSI   L BSP         GO BACKSPACE              SRC
06A4 00 440003C4              BSI   L BSP         GO BACKSPACE              SRC
                        *
06A6 00 4400032C        RTN80 BSI   L RD          GO READ                   SRC
06A8 00 440003C4              BSI   L BSP         GO BACKSPACE              SRC
                        *
                        *                   CHECK DATA
                        *
06AA 00 C4000684        RTN8E LD    L   ONE         GET 1
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8BD14270
8BD14280
8BD14290
8BD14300
8BD14310
8BD14320
8BD14330
8BD14340
8BD14350
8BD14360
8BD14370
8BJ14380
8BD14390
8BD14400
8BD14410
8BD14420
8BD14430
8BD14440
8BD14450
8BD14460
8BD14470
8BD14480
8BD14490
8BD14500
8BD14510
8BD14520
8BD14530
8BD14540
8BD14550
8BD14560
8BD14570
8BD14580
8BD14590
8BD14600
8BD14610
8BD14620
8BD14630
8BD14640
8BD14650
8BD14660
8BD14670
8BD14680
8BD14690
8BD14700
8BD14710
8BD14720
8BD14730
8BD14740
8BD14750
8BD14760
8BD14770
8BD14780
8BD14790
8BD14800
8BD14810
8BD14820
8BD14830
8BD14840
8BD14850
8BD14860
8BD14870
8BD14880
8BD14890
8BD14900
8BD14910
8BD14920
8BD14930
8BD14940
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```
06AC 00 04000685          STO  L  WOCT       SET AS WD CT                  88D14950
06AE 0  1010              SLA     16         CLEAR A REG                   88D14960
06AF 00 04000686          STD  L  MSG4T      SAVE                          88D14970
06B1 00 C4000687          LD   L  LNE0       SET LINE 0                    88D14980
06B3 0  001E              STO     RTN8Q                                    88D14990
0684 0  680B              STX  3  RTN8J+1    SAVE IX 3                     88D15000
06B5 0  63F8              LOX  3  -8         IX 3 = NUM8ER WDRDS           88015010
06B6 00 C7000941  RTN8H   LD   L3 IOAA+8     GET A DATA WO                 88D15020
0688 0  F028              EDR     P8F        IS WD CORRECT                 88015030
0689 0  4820              BSC     Z                                        88015040
068A 0  7011              MDX     RTN8N      NO                            88D15050
068B 00 74010685  RTN8F   MDX  L  WDCT,1     INCR WD CT                    88015060
0680 0  7301              MDX  3  1          DECR IX 3                     88D15070
068E 0  70F7              MDX     RTN8H      LODP                          88D15080
068F 00 67000000  RTN8J   LDX  L3 0          RESTORE IX 3                  88D15090
                  *                                                        88D15100
                  *                  CHECK FOR RDUTINE CDMPLETE            88D15110
                  *                                                        88D15120
06C1 00 C4000683  RTN8K   LD   L  DECTR      GET DDD EVEN CTR              88D15130
06C3 0  4804              BSC     E          IS IT EVEN                    88D15140
06C4 0  70CA              MDX     RTN8A      ND                            88D15150
06C5 0  7201              MDX  2  1          DECR IX 2                     88D15160
06C6 0  70C8              MDX     RTN8A      CONTINUE RTN                  88D15170
06C7 00 4C0001EA  RTN8L   BSC  L  RETRN       RDUTINE CDMPLETE             88D15180
                  *                                                        88D15190
                  *                  ODD-EVEN CTR IS DDD                   88D15200
                  *                                                        88015210
06C9 0  C016      RTN8M   LD       TR0       GET 8A0 TR CDNSTANT           88D15220
06CA 0  1008              SLA     8          MDVE TD FIRST CHAR            88D15230
06CB 0  7000              MDX     RTN8C                                    88D15240
                  *                                                        88D15250
                  *                  DATA IS NDT CDRRECT                   88D15260
                  *                                                        88D15270
06CC 00 C40006E1  RTN8N   LD   L  P8F        GET PATTERN                   88D15280
06CE 0  0013              STO     PRPAT      SET FOR PRINT                 88D15290
06CF 00 4400043A          BSI  L  PRINT      PRINT BAD DATA                88015300
06D1 0  E001              DC      /E001      ERROR 1                       88D15310
0602 0  0001      RTN8Q   DC      /0001      FORM 1                        88D15320
06D3 0  7001              MDX     RTN8P      CONTINUE                      88015330
0604 0  70D1              MDX     RTN8D      LODP ON ERRDR                 88D15340
06D5 00 0C0001C2  RTN8P   XID  L  RD8SW      READ DATA SWS                 88015350
06D7 00 C4000688          LD   L  LNE1       SET NDT LINE 0                88D15360
0609 0  00F8              STO     RTN8Q                                    88D15370
06DA 00 C40001C8          LD   L  SW0        GET SWS                       88015380
06DC 0  1007              SLA     7                                        88D15390
0600 0  4810              BSC     -          PRINT ONLY FIRST              88015400
06DE 0  70DC              MDX     RTN8F      ND                            88015410
06DF 0  700F              MDX     RTN8J      YES                           88015420
                  *                                                        88015430
                  *                  CONSTANTS                             88D15440
                  *                                                        88D15450
06E0 0  0080      TR0     DC      /0080      8AD TR CDNSTANT               88D15460
06E1 0  8F8F      P8F     DC      /8F8F      PATTERN                       88D15470
06E2 0  0000      PRPAT   DC      0          PATTERN TD PRINT              88015480
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D15490
                  *                                                        88D15500
                  *                  TESTING ROUTINE 9                     88D15510
                  *                                                        88015520
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88015530
06E3 0  6208      RTN9    LDX   2 8          IX 2 = ND TRACKS              88D15540
06E4 0  6308      RTN90   LDX   3 8                                        88015550
06E5 0  C068      RTN9J   LD        P8F70    GET PATTERN                   88D15560
06E6 00 D7000938          STD   L3 IOAA-1    SET IN I/D AREA               88D15570
06E8 0  73FF              MDX   3 -1         DECR IX 3                     88015580
06E9 0  70F8              MDX     RTN9J                                    88D15590
06EA 00 67000131          LDX   L3 305       IX 3 = 305 CHARACTER          88015600
06EC 0  1010              SLA     16         CLEAR A REG                   88D15610
06E0 00 07000940  RTN9K   STO   L3 IOAA+7     SET IN I/D AREA               88015620
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06EF 0  73FF              MDX   3 -1         OECR IX 3                     88015630
06F0 0  70FC              MDX     RTN9K      LOOP                          88D15640
06F1 0  C05D              LD      CRCSP      GET 0005                      88D15650
06F2 00 04000942          STD  L  IDAA+9     SET AS CRC CHARACTER          88D15660
06F4 00 04000944          STD  L  IOAA+11    SET AS LRC CHARACTER          88D15670
06F6 0  6308              LDX   3 8                                        88D15680
06F7 00 C7000938  RTN9A   LD   L3 IDA        GET A DATA WO                 88D15690
06F9 00 F6000745          EDR  L2 TRKA-1     SET DEAD TRACK                88D15700
06F8 00 D7000938          STD  L3 IDA        SfDRE                         88D15710
06FD 0  73FF              MDX   3 -1         OECR IX 3                     88D15720
06FE 0  70F8              MDX     RTN9A      LOOP                          88D15730
06FF 00 C4000942          LD   L  IOAA+9     GET CRC CHARACTER             88D15740
0701 00 F600073D          EDR  L2 CRCA-1     SET DEAD TRACK                88D15750
0703 00 04000942          STO  L  IDAA+9     SET AS CRC CHARACTER          88D15760
0705 00 D4000944          STD  L  IOAA+11    SET AS LRC CHARACTER          88D15770
                  *                                                        88D15780
0707 00 44000204          8SI  L  WRT        GO WRITE              SRC     88D15790
                  *                                                        88D15800
0709 00 440003C4          BSI  L  BSP        GO BACKSPACE          SRC     88D15810
0708 00 440003C4          8SI  L  BSP        GO 8ACKSPACE          SRC     88D15820
                  *                                                        88D15830
070D 00 4400032C  RTN9B   BSI  L  RO         GO REAO               SRC     88D15840
070F 00 440003C4          8SI  L  8SP        GO BACKSPACE          SRC     88D15850
                  *                                                        88D15860
                  *                  CHECK DATA                            88D15870
                  *                                                        88D15880
0711 0  63F8              LOX   3 -8         IX 3 = NUMBER WDS             88D15890
0712 00 C4000684          LD   L  DNE        SET WD CT = 1                 88D15900
0714 00 D4000685          STO  L  WDCT                                     88D15910
0716 00 C600074F          LD   L2 TRKMS-1    GET TRK IN ERROR              88D15920
0718 00 D4000686          STD  L  MSG4T      SAVE                          88D15930
071A 00 C4000687          LO   L  LNE0       SET LINE 0                    88D15940
071C 0  0013              STO     RTN9Q                                    88D15950
0710 00 C7000941  RTN9C   LD   L3 IOAA+8     GET A OATA WD                 88D15960
071F 0  F02E              EOR     P8F70                                    88D15970
0720 0  4820              BSC     Z          IS IT CORRECT                 88D15980
0721 0  7008              MOX     RTN9F      NO                            88D15990
0722 00 74010685  RTN9D   MDX  L  WDCT,1     INCR WD CT                    88016000
0724 0  7301              MDX   3 1          OECR IX 3                     88016010
0725 0  70F7              MDX     RTN9C      LOOP                          88016020
0726 0  72FF      RTN9E   MDX   2 -1         IS RTN COMPLETE               88016030
0727 0  70BC              MDX     RTN90      NO                            88016040
0728 00 4C0001EA          8SC  L  RETRN      YES                           88016050
                  *                                                        88016060
                  *                  DATA IS INCORRECT                     88016070
                  *                                                        88016080
072A 0  C023      RTN9F   LD        P8F70    GET PATTERN                   88016090
0728 00 040006E2          STO  L  PRPAT      SET FOR PRINT                 88016100
0720 00 4400043A          8SI  L  PRINT      PRINT BAD OATA                88016110
072F 0  E001              DC      /E001      ERROR 1                       88016120
0730 0  0001      RTN9Q   DC      /0001      FORM 1                        88016130
0731 0  7001              MDX     RTN9H      CONTINUE                      88016140
0732 0  70DA              MDX     RTN98      LODP DN ERRDR                 88016150
0733 00 0C0001C2  RTN9H   XID  L  RD8SW      REAO DATA SWS                 88016160
0735 00 C4000688          LD   L  LNE1       SET NDT LINE 0                88016170
0737 0  D0F8              STO     RTN9Q                                    88016180
0738 00 C40001C8          LD   L  SW0        GET SWS                       88016190
073A 0  1007              SLA     7                                        88016200
0738 0  4810              3SC     -          PRINT ONLY FIRST              88016210
073C 0  70E5              MDX     RTN9D      NO                            88016220
0730 0  70E8              MDX     RTN9E      YES                           88016230
                  *                                                        88016240
                  *                  CONSTANTS                             88016250
                  *                                                        88016260
073E 0  0001      CRCA    DC      /0001      CRC CNST-TRK 7                88016270
073F 0  0000              DC      /0000                6                   88016280
0740 0  0004              DC      /0004                5                   88016290
0741 0  0000              DC      /0000                4                   88016300
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2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
0742 0  0000              DC      /0000                          3    B8016310
0743 0  0020              DC      /0020                          2    8B016320
0744 0  0000              DC      /0000                          1    BB016330
0745 0  0000              DC      /0000                          0    BB016340
0746 0  0100        TRKA  DC      /0100      DEAD TR CNST-TR 7        8B016350
0747 0  0200              DC      /0200                      6        8B016360
0748 0  0400              DC      /0400                      5        88D16370
0749 0  0800              DC      /0800                      4        88D16380
074A 0  0010              DC      /0010                      3        88016390
074B 0  0020              DC      /0020                      2        BB016400
074C 0  0040              DC      /0040                      1        88D16410
074D 0  8000              DC      /8000                      0        B8D16420
074E 0  8F70        PBF70 DC      /BF70      DATA PATTERN             8B016430
074F 0  0025        CRCSP DC      /0025      CRC/LRC CHARACTER        8BD16440
0750 0  0007        TRKMS DC      7          TRACK IN ERROR-TRK 7     8B016450
0751 0  0006              DC      6                             6     BBD16460
0752 0  0005              DC      5                             5     BB016470
0753 0  0004              DC      4                             4     88016480
0754 0  0003              DC      3                             3     8B016490
0755 0  0002              DC      2                             2     88016500
0756 0  0001              DC      1                             1     8B016510
0757 0  0000              DC      0                             0     BB016520
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8B016530
                    *                                                 B8D16540
                    *              TESTING ROUTINE 10                 88016550
                    *                                                 BB016560
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8B016570
0758 0  6208        RTN10 LDX   2 8      IX 2 = ND TRACKS             8BD165B0
0759 0  6308        RT10L LDX   3 B                                   B8016590
075A 0  C0F3        RT10J LD       PBF70  GET PATTERN                 BB016600
0758 00 070C093B          STD   L3 IDAA-1 SET IN I/O AREA             88016610
075D 0  73FF              MDX   3 -1      OECR IX 3                   BB016620
075E 0  70FB              MOX      RT10J  LOOP                        8BD16630
075F 00 67000131          LDX   L3 305    IX 3 = 610 CHARACTER S      B8016640
0761 0  1010              SLA      16     CLEAR A REG                 8B016650
0762 00 07000940    RT10K STO   L3 IOAA+7 SET IN I/O                  88016660
0764 0  73FF              MOX   3 -1      DECR IX 3                   BB016670
0765 0  70FC              MOX      RT10K  LOOP                        88D16680
0766 0  C0E8              LD       CRCSP  GET CRC/LRC                 B8016690
0767 00 04000942          STO   L  IOAA+9 SET AS CRC                  88016700
0769 00 D4000944          STO   L  IOAA+11 SET AS LRC                 8B016710
0768 0  6308              LOX   3 B                                   88D16720
076C 00 C7000938    RT10B LD    L3 IOA    GET A DATA WO               8B016730
076E 00 F60007AA          EOR   L2 TRKD-1 SET DEAD TRACK              88016740
0770 00 0700093B          STO   L3 IOA    SET AS DATA                 B8016750
0772 0  73FF              MOX   3 -1      DECR IX 3                   8BD16760
0773 0  70FB              MDX      RT108  LOOP                        8BD16770
                    *                                                 88D167B0
0774 00 440002D4          8SI   L  WRT    GO WRITE              SRC   8B016790
                    *                                                 8B016800
0776 00 440003C4          8SI   L  8SP    GO 8ACKSPACE          SRC   88016810
0778 00 440003C4          8SI   L  8SP    GO 8ACKSPACE          SRC   8B016B20
                    *                                                 B8016B30
077A 00 4400032C    RT10G 8SI   L  RD     GO READ               SRC   BB016840
077C 00 440003C4          8SI   L  8SP    GO 8ACKSPACE          SRC   8B016850
                    *                                                 88016860
                    *              CHECK OATA                         8BD16B70
                    *                                                 88016880
077E 0  63F8              LDX   3 -8      IX 3 = NUMBER WDS           BB016B90
077F 00 C4000684          LD    L  ONE    GET 1                       B8D16900
0781 00 04000685          STO   L  WDCT   SET AS WD CT                88D16910
0783 00 C600074F          LD    L2 TRKMS-1 GET TRK IN ERROR           88016920
0785 00 04000686          STO   L  MSG4T  SAVE                        8BD16930
0787 00 C4000687          LD    L  LNFO   SET LINE 0                  8BD16940
0789 0  0013              STO      RT1UQ                              B8D16950
078A 00 C7000941    RT10C LD    L3 IOAA+B GET A DATA WO               8B016960
078C 0  F0C1              EOR      P8F70                              88D16970
078D 0  4B20              8SC      Z      IS IT CORRECT               88016980
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2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

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078E 0  7008              MDX      RT10F  NO                          8B016990
078F 00 74010685    RT10D MDX   L  WOCT,1 INCR WD CT                  8BD17000
0791 0  7301              MDX   3 1       DECR IX 3                   88D17010
0792 0  70F7              MDX      RT10C  LODP                        8B017020
0793 0  72FF        RT10E MDX   2 -1      IS ROUTINE COMPLETE         8B017030
0794 0  70C4              MOX      RT10L  NO                          B8D17040
0795 00 4C0001EA          BSC   L  RETRN  EXIT                        BBD17050
                    *                                                 8BD17060
                    *              OATA IS INCORRECT                  8B017070
                    *                                                 88D17080
0797 0  C086        RT10F LD       P8F70  GET PATTERN                 8BD17090
0798 00 040006E2          STO   L  PRPAT  SET FOR PRINT               8BD17100
079A 00 4400043A          8SI   L  PRINT  PRINT BAO DATA              B8017110
079C 0  E001              DC       /E001  ERROR 1                     8B017120
0790 0  0001        RT10Q DC       /0001  FORM 1                      8B017130
079E 0  7001              MDX      RT10H  CONTINUE                    8B017140
079F 0  70DA              MDX      RT10G  LOOP ON ERROR               BB017150
07A0 00 0C0001C2    RT10H XIO   L  RDBSW  REAO OATA SWS               BB017160
07A2 00 C4000688          LD    L  LNE1   SET NOT LINE 0              8BD17170
07A4 0  00F8              STO      RT10Q                              BB017180
07A5 00 C40001CB          LO    L  SWO    GET SWS                     BB017190
07A7 0  1007              SLA      7                                  B8017200
07A8 0  4B10              BSC      -      PRINT ONLY FIRST            88017210
07A9 0  70E5              MDX      RT100  NO                          88017220
07AA 0  70EB              MDX      RT10E  YES                         BBD17230
                    *                                                 8BD17240
                    *              CONSTANTS                          BB017250
                    *                                                 BBD17260
07A8 0  0101        TRKO  OC      /0101   BAO TRK CNST-TR 7           BB017270
07AC 0  0202              DC      /0202                   6           8B017280
07AD 0  0404              OC      /0404                   5           BB017290
07AE 0  0808              OC      /080B                   4           8B017300
07AF 0  1010              DC      /1010                   3           B8017310
07B0 0  2020              OC      /2020                   2           B8017320
0781 0  4040              OC      /4040                   1           BB017330
07B2 0  8080              DC      /B0B0                   0           8B017340
07B3 0  B080        TRK8  DC      /8080   8AO TR CONSTANT             8B017350
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8B017360
                    *                                                 8BD17370
                    *              TESTING ROUTINE 11                 88017380
                    *                                                 B8017390
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    88017400
0784 00 440002BC    RTN11 8SI   L  SP80   SET I/O AREA          SRC   88D17410
0786 0  6307        RT11L LDX   3 7                                   BB017420
0787 00 C700093B    RT11A LD    L3 IOA    GET A PATT WO               89017430
0789 00 E40007F6          AND   L  R11XO  SET LOST CHARACTER          8BD17440
078B 00 07000938          STO   L3 IOA    SET                         88D17450
07BD 0  73FF              MDX   3 -1      OECR IX 3                   BB017460
078E 0  70F8              MDX      RT11A  LOOP                        88D17470
                    *                                                 B8017480
078F 00 44000204          BSI   L  WRT    GO WRITE              SRC   B8017490
                    *                                                 BB017500
07C1 00 440003C.          BSI   L  8SP    GO BACKSPACE          SRC   8B017510
07C3 00 440003C4          BSI   L  8SP    GO BACKSPACE          SRC   83017520
                    *                                                 B8D17530
07C5 00 4400032C    RT118 BSI   L  RD     GO READ               SRC   8B017540
07C7 00 440003C4          8SI   L  8SP    GO 8ACKSPACE          SRC   88017550
                    *                                                 88017560
                    *              CHECK DATA                         8B017570
                    *                                                 B80175B0
07C9 0  63F8              LDX   3 -8      IX 3 = NUMBER WDS           8B017590
07CA 00 C4000684          LD    L  ONE    GET 1                       88D17600
07CC 00 D4000685          STO   L  WDCT   SET AS WD CT                88D17610
07CE 00 C4000513          LD    L  TERM   GET FFFF                    88017620
0700 00 040006B6          STO   L  MSG4T  SET AS TRK IN ERROR         8B017630
07D2 00 C4000687          LD    L  LNEO   SET LINE 0                  8B017640
07D4 0  D013              STO      RT11Q                              88D17650
07D5 00 C7000941    RT11C LO    L3 IOAA+8 GET A OATA WO               88017660
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2400 CYCLIC REOUNOANCY CHECK FUNCTION TEST

```
0707 00 F4000203         EOR  L  P80                                 8B017670
0709 0  4820             BSC     Z          IS WO CORRECT            8B017680
070A 0  7006             MOX     RT11F      NO                       8B017690
070B 00 74010685  RT110  MOX  L  WOCT,1     INCR WO CT               8B017700
070D 0  7301             MOX   3 1          OECR IX 3                8B017710
070E 0  70F6             MOX     RT11C                               8B017720
070F 00 4C0001EA  RT11E  BSC  L  RETRN      ROUTINE EXIT             8B017730
                  *                                                  8B017740
                  *              OATA IS INCORRECT                   8B017750
                  *                                                  8B017760
07E1 00 C4000203  RT11F  LO   L  P80        GET PATTERN              8B017770
07E3 00 040006E2         STO  L  PRPAT      SET FOR PRINT            8B017780
07E5 00 4400043A         BSI  L  PRINT      PRINT BAO OATA           8B017790
07E7 0  E001             OC      /E001      ERROR 1                  8B017800
07EB 0  0001      RT11Q  OC      /0001      FORM 1                   8B017810
07E9 0  7001             MOX     RT11H      CONTINUE                 8B017820
07EA 0  700A             MOX     RT118      LOOP ON ERROR            8B017830
07EB 00 0C0001C2  RT11H  XIO  L  ROBSW      REAO OATA SWS            8B017840
07E0 00 C4000688         LO   L  LNE1       SET NOT LINE 0           8B017850
07EF 0  00F8             STO     RT11Q                               8B017860
07F0 00 C40001CB         LO   L  SWO        GET SWS                  8B017870
07F2 0  1007             SLA     7                                   8B017880
07F3 0  4810             BSC     -          PRINT ONLY FIRST         8B017890
07F4 0  70E6             MOX     RT110      NO                       8B017900
07F5 0  70E9             MOX     RT11E      YES                      8B017910
07F6 0  FF00      R11X0  OC      /FF00      SET LOST CHAR            8B017920
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8B017930
                  *                                                  8B017940
                  *              TESTING ROUTINES 12                 8B017950
                  *              THROUGH 18                          8B017960
                  *                                                  8B017970
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8B017980
07F7 0  73F5      CM312  MOX   3 -11        SET IX 3                 8B017990
07F8 0  6B08             STX   3 CM123+1    SAVE IX 3                8B018000
07F9 0  1010             SLA     16         ZERO A REG               8B018010
07FA 00 04000683         STO  L  OECTR      CLEAR 000 EVEN CTR       8B018020
07FC 00 6600FFF8         LOX  L2 -8         IX 2 = NO WOS            8B018030
07FE 00 440002BC  CM120  BSI  L  SP80       SET I/O AREA        SRC  8B018040
0800 00 67000000  CM123  LOX  L3 0          RESTORE IX 3             8B018050
0802 00 C4000683         LO   L  OECTR      GET 000 EVEN CTR         8B018060
0804 00 84000684         A    L  ONE        AOO 1                    8B018070
0806 00 04000683         STO  L  OECTR      SAVE                     8B018080
0808 0  4804             BSC     E          IS CTR EVEN              8B018090
0809 0  7032             MOX     CM122      NO                       8B018100
080A 00 C7000679         LD   L3 TR1-1      GET BAO TRACK CONST      8B018110
080C 00 F6000941  CM121  EOR  L2 IOAA+8     SET                      8B018120
080E 00 06000941         STO  L2 IOAA+8     SET                      8B018130
0810 0  6807             STX   3 CM12F+1    SAVE IX 3                8B018140
0811 00 44000204         BSI  L  WRT        GO WRITE            SRC  8B018150
                  *                                                  8B018160
0813 00 440003C4         BSI  L  BSP        GO BACKSPACE        SRC  8B018170
0815 00 440003C4         BSI  L  BSP        GO BACKSPACE        SRC  8B018180
0817 00 67000000  CM12F  LOX  L3 0          RESTORE IX 3             8B018190
0819 00 4400032C         BSI  L  RO         GO REAO             SRC  8B018200
081B 00 440003C4         BSI  L  BSP        GO BACKSPACE        SRC  8B018210
                  *                                                  8B018220
                  *              CHECK OATA                          8B018230
                  *                                                  8B018240
081D 00 C4000684  CM126  LO   L  ONE        GET 1                    8B018250
081F 00 D4000685         STO  L  WOCT       SET AS WO CT             8B018260
0821 00 6F000686         STX  L3 MSG4T      SET TRK IN ERROR         8B018270
0823 00 C4000687         LO   L  LNEO       SET LINE 0               8B018280
0825 0  0021             STO     CM12Q                               8B018290
0826 0  680C             STX   3 CM128+1    SAVE IX 3                8B018300
0827 0  63F8             LOX   3 -8         IX 3 = NO WOS            8B018310
0828 00 C7000941  CM12C  LO   L3 IOAA+8     GET A OATA WO            8B018320
082A 00 F4000203         EOR  L  P80                                 8B018330
082C 0  4820             BSC     Z          IS WO CORRECT            8B018340
```


2400 CYCLIC REOUNOANCY CHECK FUNCTION TEST

```
0820 0  7012             MOX     CM128      NO                       8B018350
082E 00 74010685  CM120  MOX  L  WOCT,1     INCR WO CT               8B018360
0830 0  7301             MOX   3 1          OECR IX 3                8B018370
0831 0  70F6             MOX     CM12C      LOOP                     8B018380
0832 00 67000000  CM128  LOX  L3 0          RESTORE IX 3             8B018390
                  *                                                  8B018400
                  *              CHECK FOR ROUTINE COMPLETE          8B018410
                  *                                                  8B018420
0834 00 C4000683  CM12E  LO   L  OECTR      GET 000 EVEN CTR         8B018430
0836 0  4804             BSC     E          IS IT EVEN               8B018440
0837 0  70C6             MOX     CM120      NO                       8B018450
0838 0  7201             MOX   2 1          OECR IX 2                8B018460
0839 0  70C4             MOX     CM120                               8B018470
083A 00 4C0001EA  CM125  BSC  L  RETRN      RTN EXIT                 8B018480
                  *                                                  8B018490
                  *              000 EVEN CTR IS 000                 8B018500
                  *                                                  8B018510
083C 00 C7000679  CM122  LO   L3 TR1-1      GET 8AO TR CONSTANT      8B018520
083E 0  1008             SLA     8          MOVE TO FIRST CHAR       8B018530
083F 0  70CC             MOX     CM121                               8B018540
                  *                                                  8B018550
                  *              OATA IS NOT CORRECT                 8B018560
                  *                                                  8B018570
0840 00 C4000203  CM128  LO   L  P80        GET EXPECTED             8B018580
0842 00 040006E2         STO  L  PRPAT      SAVE                     8B018590
0844 00 4400043A         BSI  L  PRINT      GO PRINT            SRC  8B018600
0846 0  E001             OC      /E001      ERROR 1                  8B018610
0847 0  0001      CM12Q  OC      /0001      FORM 1                   8B018620
0848 0  7001             MOX     CM127      CONTINUE                 8B018630
0849 0  70C0             MOX     CM12F      LOOP ON ERROR            8B018640
084A 00 0C0001C2  CM127  XIO  L  ROBSW      REAO OATA SWS            8B018650
084C 00 C4000688         LO   L  LNE1       SET NOT LINE 0           8B018660
084E 0  00F8             STO     CM12Q                               8B018670
084F 00 C40001CB         LO   L  SWO        GET SWS                  8B018680
0851 0  1007             SLA     7                                   8B018690
0852 0  4810             BSC     -          IS PRINT ONLY 1 ON       8B018700
0853 0  700A             MOX     CM120      NO                       8B018710
0854 0  700D             MOX     CM128      YES                      8B018720
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8B018730
                  *                                                  8B018740
                  *              TESTING ROUTINE 19                  8B018750
                  *                                                  8B018760
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8B018770
0855 0  1010      RTN19  SLA     16         CLEAR ODO EVEN CTR       8B018780
0856 00 04000683         STO  L  OECTR                               8B018790
0858 00 6600FFF8         LOX  L2 -8         IX 2 = NO WDS            8B018800
085A 00 4400028E  RT19A  BSI  L  SP7F       GO SET I/O AREA     SRC  8B018810
085C 00 C4000683         LO   L  OECTR      GET OOD/EVEN CTR         8B018820
085E 00 84000684         A    L  ONE        AOO 1                    8B018830
0860 00 04000683         STO  L  OECTR      SAVE                     8B018840
0862 0  4804             BSC     E          IS CTR EVEN              8B018850
0863 0  7030             MOX     RT19M      NO                       8B018860
0864 00 C40006E0         LO   L  TRO        GET BAO TR CONSTANT      8B018870
0866 00 F6000941  RT19C  EOR  L2 IOAA+8     SET BAO CHARACTER        8B018880
0868 00 06000941         STO  L2 IOAA+8                              8B018890
                  *                                                  8B018900
086A 00 44000204         BSI  L  WRT        GO WRITE            SRC  8B018910
                  *                                                  8B018920
086C 00 440003C4         BSI  L  8SP        GO BACKSPACE        SRC  8B018930
086E 00 440003C4         BSI  L  BSP        GO BACKSPACE        SRC  8B018940
                  *                                                  8B018950
0870 00 4400032C  RT190  BSI  L  RO         GO REAO             SRC  8B018960
0872 00 440003C4         BSI  L  8SP        GO BACKSPACE        SRC  8B018970
                  *                                                  8B018980
                  *              CHECK OATA                          8B018990
                  *                                                  8B019000
0874 00 C4000684  RT19E  LO   L  ONE        GET 1                    8B019010
0876 00 04000685         STO  L  WOCT       SET AS WO CT             8B019020
```

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
0878 0  1010              SLA    16          CLEAR A REG                  8B019030
0879 00 04000686          STO  L MSG4T       SET TRK IN ERROR             8B019040
0878 00 C4000687          LD   L LNE0        SET LINE 0                   8B019050
0870 0  0021              STO    RT19Q                                    8B019060
087E 0  6B0C              STX    3 RT19J+1   SAVE IX 3                    8BD19070
087F 0  63F8              LDX    3 -8        IX 3 = NUMBER WORDS          8B019080
0880 00 C7000941  RT19H   LD   L3 IOAA+8     GET A OATA WO                8B019090
0882 00 F40002A3          EDR  L P7F         IS WO CORRECT                8B019100
0884 0  4820              BSC    Z                                        8BD19110
0885 0  7012              MDX    RT19N       NO                           8BD19120
0886 00 74010685  RT19F   MDX  L WDCT,1      INCR WO CT                   8BD19130
0888 0  7301              MDX    3 1         DECR IX 3                    88D19140
0869 0  70F6              MDX    RT19H       LOOP                         8BD19150
088A 00 67000000  RT19J   LDX  L3 0         RESTORE IX 3                 8B019160
                  *                                                      8BD19170
                  *                  CHECK FOR ROUTINE COMPLETE          8BD19180
                  *                                                      8BD19190
088C 00 C4000683  RT19K   LD   L OECTR       GET ODD EVEN CTR             8B019200
088E 0  4804              BSC    E           IS IT EVEN                   88019210
088F 0  70CA              MDX    RT19A       NO                           88019220
0890 0  7201              MDX    2 1         DECR IX 2                    88019230
0891 0  70C8              MDX    RT19A       CONTINUE RTN                 8BD19240
0892 00 4C0001EA  RT19L   BSC  L RETRN       ROUTINE COMPLETE             88D19250
                  *                                                      8BD19260
                  *                  ODD-EVEN CTR IS ODD                 8BD19270
                  *                                                      88D19280
0894 00 C40006E0  RT19M   LD   L TRO         GET BAD TR CONSTANT          8B019290
0896 0  1008              SLA    8           MOVE TO FIRST CHAR           88019300
0897 0  70CE              MDX    RT19C                                    8BD19310
                  *                                                      8BD19320
                  *                  OATA IS NOT CORRECT                 88D19330
                  *                                                      8B019340
0898 00 C40002A3  RT19N   LO   L P7F         GET PATTERN                  8B019350
089A 00 040006E2          STD  L PRPAT       SET FOR PRINT                8B019360
089C 00 4400043A          BSI  L PRINT       PRINT BAD DATA         SRC   8B019370
089E 0  E001              DC     /E001       ERROR 1                      8BD19380
089F 0  0001      RT19Q   DC     /0001       FORM 1                       8B019390
08A0 0  7001              MDX    RT19P       CONTINUE                     88019400
08A1 0  70CE              MDX    RT19O       LOOP ON ERROR                8BD19410
08A2 00 0C0001C2  RT19P   XIO  L RD8SW       READ DATA SWS                8B019420
08A4 00 C4000688          LD   L LNE1        SET NOT LINE 0               88019430
08A6 0  D0F8              STD    RT19Q                                    88019440
08A7 00 C40001CB          LD   L SW0         GET SWS                      88D19450
08A9 0  1007              SLA    7                                        8BD19460
08AA 0  4810              BSC    -           PRINT ONLY FIRST             8BD19470
08A8 0  70DA              MDX    RT19F       NO                           88019480
08AC 0  700D              MDX    RT19J       YES                          88D19490
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88019500
                  *                                                      88019510
                  *                  TESTING ROUTINE 20                  8B019520
                  *                                                      8BD19530
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D19540
08A0 0  6207      RT20  LDX    2 7         IX 2 = NO TRACKS             88019550
08AE 00 440002BC  RT200 BSI  L SP80        SET I/O AREA           SRC   88D19560
0880 0  6308              LDX    3 8                                      8BD19570
0881 00 C7000938  RT20A   LD   L3 IDA       GET A OATA WO                8B019580
0883 00 F60008FF          EOR  L2 TRKC-1     SET BAD TRACK                8B019590
0885 00 07000938          STO  L3 IOA        SET IN I/O AREA              88019600
0887 0  73FF              MDX    3 -1        DECR IX 3                    88019610
08B8 0  70F8              MDX    RT20A       LOOP                         8BD19620
                  *                                                      88019630
0889 00 44000204          BSI  L WRT         GO WRITE               SRC   8B019640
                  *                                                      88D19650
088B 00 440003C4          BSI  L 8SP         GO BACKSPACE           SRC   88D19660
08B0 00 440003C4          8SI  L BSP         GO BACKSPACE           SRC   8B019670
                  *                                                      8B019680
088F 00 4400032C  RT20B   8SI  L RO          GO READ                SRC   8B019690
08C1 00 440003C4          8SI  L 8SP         GO BACKSPACE           SRC   88019700
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2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
                  *                                                      88019710
                  *                  CHECK OATA                          88019720
                  *                                                      88D19730
08C3 0  63F8              LDX    3 -8        IX 3 = NUMBER WOS            8B019740
08C4 00 C4000684          LD   L ONE         SET WO CT = 1                88D19750
08C6 00 04000685          STO  L WOCT                                     88D19760
08C8 00 6E000686          STX  L2 MSG4T      SET TRK IN ERROR             88D19770
08CA 00 C4000687          LD   L LNE0        SET LINE 0                   88019780
08CC 0  0015              STO    RT20Q                                    88D19790
08CD 00 C7000941  RT20C   LD   L3 IOAA+8     GET A OATA WD                88019800
08CF 00 F4000203          EOR  L P80                                      88D19810
08D1 0  4820              BSC    Z           IS IT CORRECT                88D19820
0802 0  7008              MDX    RT20F       NO                           8B019830
08D3 00 74010685  RT200   MDX  L WDCT,1      INCR WO CT                   8B019840
08D5 0  7301              MOX    3 1         OECR IX 3                    88D19850
08D6 0  70F6              MDX    RT20C       LOOP                         8B019860
0807 0  72FF      RT20E   MDX    2 -1        IS RTN COMPLETE              8B019870
0808 0  7005              MDX    RT200       NO                           88019880
0809 00 4C0001EA          BSC  L RETRN       YES                          88019890
                  *                                                      88019900
                  *                  DATA IS INCORRECT                   8B019910
                  *                                                      8B019920
0808 00 C4000203  RT20F   LO   L P80         GET PATTERN                  88019930
08DD 00 040006E2          STD  L PRPAT       SET FOR PRINT                88D19940
08DF 00 440C043A          BSI  L PRINT       PRINT 8AO DATA         SRC   88019950
08E1 0  E001              DC     /E001       ERROR 1                      88019960
08E2 0  0001      RT20Q   DC     /0001       FORM 1                       8BD19970
08E3 0  7001              MDX    RT20H       CONTINUE                     88019980
08E4 0  70DA              MDX    RT20B       LOOP ON ERROR                88019990
08E5 00 0C0001C2  RT20H   XIO  L ROBSW       READ OATA SWS                88020000
08E7 00 C4000688          LD   L LNE1        SET NOT LINE 0               8B020010
08E9 0  00F8              STO    RT20Q                                    8B020020
08EA 00 C40001C8          LO   L SWO         GET SWS                      8B020030
08EC 0  1007              SLA    7                                        8B020040
08E0 0  4810              8SC    -           PRINT ONLY FIRST             88D20050
08EE 0  70E4              MDX    RT200       NO                           88D20060
08EF 0  70E7              MOX    RT20E       YES                          8B020070
                  *                                                      88D20080
                  *                  CONSTANTS                           88020090
                  *                                                      88D20100
08F0 0  4040      TRKC    OC     /4040       8AD TR CNST-TR 1             88020110
08F1 0  2020              DC     /2020                      2             8B020120
08F2 0  1010              DC     /1010                      3             8BD20130
08F3 0  0808              DC     /0808                      4             8BD20140
08F4 0  0404              OC     /0404                      5             8B020150
08F5 0  0202              OC     /0202                      6             8B020160
08F6 0  0101              DC     /0101                      7             88020170
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD20180
                  *                                                      8BD20190
                  *                  TESTING RDUTINE 21                  8BD20200
                  *                                                      88D20210
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D20220
08F7 00 4400028E  RT21  8SI  L SP7F         SET 1/O AREA           SRC   8802022O
08F9 0  6308              LDX    3 8                                      88020240
08FA 00 C7000938  RT21B   LO   L3 IOA        GET A OATA WO                8B020250
08FC 00 F4000783          EOR  L TRKB        SET BAO TRACK                8B020260
08FE 00 07000938          STO  L3 IOA        SET AS OATA                  88020270
0900 0  73FF              MOX    3 -1        OECR IX 3                    88D20280
0901 0  70F8              MOX    RT218       LOOP                         88020290
                  *                                                      88D20300
0902 00 44000204          8SI  L WRT         GO WRITE               SRC   88020310
                  *                                                      88020320
0904 00 440003C4          BSI  L BSP         GO BACKSPACE           SRC   88020330
0906 00 440003C4          BSI  L BSP         GO 8ACKSPACE           SRC   8B020340
                  *                                                      8B020350
0908 00 4400032C  RT21G   8SI  L RO          GO READ                SRC   88020360
090A 00 440003C4          BSI  L 8SP         GO BACKSPACE           SRC   8BD20370
                  *                                                      88D20380
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090C 0  63F8          *
0900 00 C4000684      *                    CHECK OATA
090F 00 04000685      *
0911 0  1010                LOX   3 -8     IX 3 = NUM8ER WOS
0912 00 04000686            LO  L ONE      GET 1
0914 00 C4000687            STO L WOCT     SET AS WD CT
0916 0  D013                SLA   16       CLEAR A REG
0917 00 C70C0941            STO L MSG4T    SET TRK IN ERROR
0919 00 F40002A3            LO  L LNE0     SET LINE 0
0918 0  4820                STO   RT210
091C 0  7006          RT21C LD    L3 IOAA+8  GET A DATA WO
0910 00 74010685            EDR L P7F
091F 0  7301                8SC   Z        IS IT CORRECT
0920 0  70F6                MDX   RT21F    NO
0921 00 4C0001EA      RT21D MDX L WOCT,1   INCR WD CT
                            MDX   3 1      OECR IX 3
                            MDX   RT21C    LOOP
                      RT21E BSC L RETRN    EXIT
                      *
                      *                    OATA IS INCORRECT
                      *
0923 00 C40002A3      RT21F LD  L P7F      GET PATTERN
0925 00 040006E2            STO L PRPAT    SET FOR PRINT
0927 00 4400043A            8SI L PRINT    PRINT 8AD DATA
0929 0  E001                OC    /E001    ERROR 1
092A 0  0001          RT21Q OC    /0001    FORM 1
092B 0  7001                MDX   RT21H    CONTINUE
092C 0  7008                MDX   RT21G    LODP ON ERROR
0920 00 0C0001C2      RT21H XIO L RD8SW    REAO OATA SWS
092F 00 C4000688            LO  L LNE1     SET NOT LINE 0
0931 0  00F8                STO   RT21Q
0932 00 C4C001CB            LD  L SWO      GET SWS
0934 0  1007                SLA   7
0935 0  4810                8SC   -        PRINT ONLY FIRST
0936 0  70E6                MOX   RT210    NO
0937 0  70E9                MOX   RT21E    YES
0938 0  4267          IOA   OC    /4267    WORD COUNT
0939 0  0000          IOAA  OC    0        I/O AREA
093A    0266                8SS   614
08A0    0120                ENO   START
```

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88D20390
88D20400
88D20410
88D20420
88020430
88020440
88D20450
88020460
88D20470
88020480
88020490
88D20500
88D20510
88020520
88D20530
88020540
88020550
88D20560
88D20570
88D20580
88020590
88020600
SRC 88D20610
88020620
88020630
88020640
88D20650
88D20660
88020670
88020680
88020690
88020700
88020710
88020720
88020730
88020740
88020750
88020760
8802076 88020770
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CROSS REFERENCE LISTING

SYM8OL	VALUE	REFERENCES
8EGAN	0147	014A
8EGIN	0143	01AE,0186,0100,0217
BSP	03C4	0300,0345,037C,0384,03CE,063C,063E,0644,06A2,06A4, 06A8,0709,0708,070F,0776,0778,077C,07C1,07C3,07C7, 0813,0815,0818,086C,086E,0872,0888,0880,08C1,0904, 0906,090A
8SP10	03F4	03D2,0303,0304
8SP01	03C5	03F0
8SP02	03CE	03C8,030A
8SP03	03D0	03C0,03E4
8SP04	0308	0309
8SP05	03E5	03E3
8SP06	03E7	03C9
8SP07	03F1	03EF
CLN	0370	0368
CLN1	037A	
CLN2	0378	0386
CLN3	0383	0378,0394,0395,0396
CLN5	0388	0391,0392,0398
CLN6	038C	038A
CLN7	038E	0388
CLN8	0393	0382
CMRT	0624	01D4,01D5,0106,0107,01D8,01D9,010A
CMRT8	0666	0654
CMRTC	064F	0658
CMRT0	0655	0678
CMRTE	065B	
CMRTF	0640	0639,066F
CMRTT	0103	01A6,01EC,0453
CMRT0	0629	0650,065F
CMRT1	0635	0665
CMRT2	0662	0632
CMRT3	0628	0624
CMRT5	0660	
CMRT6	0646	
CMRT7	0670	066E
CMRT8	0659	064B,0679
CMRT9	0660	0640,0671
CMR12	07F7	010F,01E0,01E1,01E2,01E3,01E4,01E5
CM128	0840	082J
CM12C	0828	0831
CM120	082E	0853
CM12E	0834	
CM12F	0817	0810,0849
CM12Q	0847	0825,084E
CM120	07FE	0837,0839
CM121	080C	083F
CM122	083C	0809
CM123	0800	07F8
CM125	083A	
CM126	0810	
CM127	084A	0848
CM128	0832	0826,0854
COOEH	05DE	05C1
CDROS	03C1	0360
CRCA	073E	0701
CRCSP	074F	06F1,0766
CRC7F	02A4	029C
CRC8F	0288	0284
CRC80	0202	02C6
OSL	0622	0618,0618,061C,061F
OSLT	0617	0386,0620
DSW	023A	0231,02E3,02E8,0302,0340,0349,035E,0399,0306,03D8, 03E7,0410
OSWCR	0682	

DWEX	0681	
EDIT	01C6	0134,014F,0168,016C,0176,0181,0220,0269,0420
EDT	0132	012D
EDT1	0133	0137
EDT2	0130	0138
ELE	032A	
END	020D	0205
ERA	0324	0311,0312,0313
ERRR	04EE	04E6
FORM	0482	0470
FORMC	04A6	049E,04A2
FORM1	0491	0483
FORM2	049E	0484
FORM3	049F	0485
FORM4	04A3	0486
FOUR	0329	02FF
FRMC1	04A9	04AC
FRMC2	0481	046F,047C,04C1
FRMC3	04CC	04C8
FRMC4	04CE	0444,04CB
FRMC5	04D5	04E8,04EA
FRMC6	04E4	04D4
FRMC7	040E	043D,04ED
FRMC8	04E0	0438
FRMC9	04E8	0408
FRST	048C	046A
FRWC	0487	0462
HEXC0	05DC	0487,05C8,05CF
HEXCV	0584	0485,05D4
HEXC1	058D	058E,05C7
HEXC2	0500	0585
HEXC3	0502	0587
HEXWD	0506	0483,058A
HEX00	05D7	05C3,05C8,05CA,05CC,05CE
ILSW	0238	021C,0254
INTR	0219	0234,023F
INTR1	0227	0222
INTR2	023E	0145,024A,0251
INTR3	0232	0226
IOA	0938	020A,0322,0335,03BC,06F7,06FB,076C,0770,0787,0788,08B1,0885,08FA,08FE
IOAA	0939	0291,0298,029C,029F,02A9,0280,0285,0287,02C0,02C7,02CC,02CE,0494,0635,0637,064F,069C,069E,0686,06E6,06ED,06F2,06F4,06FF,0703,0705,071D,0758,0762,0767,0769,078A,0705,080C,080E,0828,0866,0868,0880,08C0,0917
IOARA	0582	0591,059E,05A0,05AE
K005	03A7	0393
K009	03A9	0366,0373
K010	03A8	0376
LNE0	0687	064C,0681,071A,0787,07D2,0823,0878,08CA,0914
LNE1	0688	0670,06D7,0735,07A2,07E0,084C,08A4,08E7,092F
LOGC	0514	04C9,054E
LOGCA	0557	
LOGC8	0541	0558
LOGC0	0546	0524
LOGC1	051F	0545
LOGC2	0525	053E
LOGC3	0528	0527
LOGC4	0531	0530
LOGC5	0533	052C
LOGC6	053F	0537
LOGC7	0548	051A,05AC
LOGC8	054A	0518
LOGC9	054C	051C
LOGX0	047F	046E
LOGX1	0480	0478
LOGX2	0481	0478

LDG00	0584	0546
LOG01	058F	05A7
LOG02	05A8	0594
LOG03	05A4	059D
LOX00	0550	0516,0535,0539,0543
LOX02	0551	0520,0525,052D,0538,053D
LOX03	0552	0538,0540
LOX04	0553	052A
MASK0	060C	0588,05F4
MASK1	060E	058A,05F5
MID	04F0	045A,04E4
MK0	01BE	0243
MK1	01C0	0245
MOD	01CD	0183,0422
MSG	04F8	0440,0518,058F,05F2,0614
MSG0	04F9	04A9,0489,048C,0510
MSG1	04F4	044B,0493,04A1,04A5
MSG2	04F5	0447,0496
MSG3	04F6	0449,0499
MSG4	04F7	044F,049C
MSG4T	0686	049A,0649,06AF,0718,0785,07D0,0821,0879,08C8,0912
MTST	015A	
OECTR	0683	0626,062D,0630,0658,0688,0693,0697,06C1,07FA,0802,0806,0834,0856,085C,0860,088C
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RETR2	01F6	01F5
RETR3	0203	01F8
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RSTRT	01D0	0151
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RTN11	07B4	01DE
RTN19	0855	01E6
RTN8	0689	01DB
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RTN8L	06C7	
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RTN9A	06F7	06FE
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RTN9E	0726	073D
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RT10E	0793	07AA
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RT10G	077A	079F
RT10H	07A0	079E
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WAIT2	0159	3002
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1. PURPOSE

TO ASSIST THE CE TO PUNCH THE NECESSARY EDIT CARDS AND/OR PAPER TAPE FOR THE 1800 DIAGNOSTIC FUNCTION TESTS.

2. REQUIREMENTS

2.1 PROGRAM

A. 4K EDIT UTILITY (PID 08C2) IF ONLY A 4K SYSTEM
B. 8K EDIT UTILITY (PID D8C3) IF GREATER THAN 4K
C. DP I/O EDIT SKELETONS (PID 08C4) FOR EDITING OF MONITOR AND DP I/O PROGRAMS
D. P I/O AND NON-MONITOR EDIT SKELETONS (PID D8C5) FOR PROCESS I/O AND NON-MONITOR PROGRAMS REQUIRING EDIT

2.2 EQUIPMENT

A. 1442 OR 1054/55
B. 1816
C. 4K OR GREATER

3. USE PROCEDURE PROGRAM LOADING

3.1 EITHER EDIT UTILITY PROGRAM (4K PID 08C2 OR 8K PID D8C3) FOLLOWED BY EITHER OR BOTH EDIT SKELETONS (DP I/O PID 08C4 OR P I/O NON-MONITOR PID D8C5) ARE LOADED BY THE RELOCATABLE LOADER PID 08B1 FOR CARDS OR PID 08BD FOR PAPER TAPE. TO SAVE LOADING ALL SKELETONS SEE SECTION 3.2. IF CARDS ARE TO BE PUNCHED, PLACE BLANK CARDS BEHIND THE DECK.

3.2 SKELETON IDENTIFICATION

EACH DECK OF SKELETONS CONTAINS SEVERAL SMALLER GROUPS. EACH SMALL GROUP HAS THE FOLLOWING IDENTIFICATION,

COLUMN		
	73-74	PID OF THE SKELETON GROUP, C4 - DP I/O EDIT SKELETONS C5 - P I/O NON-MONITOR EDIT SKELETONS
	75-76	PID FOR THE PROGRAM TO BE EDITED.
	77	SKELETON SEQUENCE NUMBER OF THE PID IN COLUMN 75-76
	78-80	CARD SEQUENCE WITHIN EACH SKELETON COL. 77.

NOTE - FOR EACH PID TO BE EDITED, THERE WILL BE A MINIMUM OF TWO SKELETONS AND A MAXIMUM OF TEN SKELETONS. ALL SKELETONS FOR ONE PID WILL BE REFERRED TO AS A SET OF SKELETONS.

SINCE ONLY ONE PROGRAM MAY BE EDITED EACH PASS ONLY ONE SET OF SKELETONS IS REQUIRED TO BE LOADED WITH EITHER EDIT UTILITY CONTROL PROGRAM (PID 08C2 OR D8C3). HOWEVER ALL SKELETONS MAY BE PLACED AFTER FITHER EDIT CONTROL AND THE PROGRAM WILL OPERATE PROPERLY.

IF LOADING FROM PAPER TAPE EACH SET OF SKELETONS IS SEPARATED BY AN IDENTIFICATION LEADER. THE TAPE MUST BE MANUALLY POSITIONED TO THE DELETE FIELD AHEAD OF THE PROPER SET OF SKELETONS BEFORE ENTERING THE PID TO BE EDITED.

EACH SET OF SKELETONS WILL BE PRECEEDED BY THE FOLLOWING IDENTIFICATION.

*R PID D8CX-Z SKELTONS FOR YY

Z = VERSION
X = 4 OR 5
YY = PID FOR THE PROGRAM TO BE EDITED.

3.3 PROGRAM OPERATION

SET IN THE DATA ENTRY SWITCHES TO SELECT THE DESIRED EDIT OUTPUT AS FOLLOWS,

CARDS ONLY - /D000
PAPER TAPE ONLY- /BDD0
CARDS AND TAPE - /4DD0

A MESSAGE WILL BE PRINTED ON THE 1816 AFTER CORRECT LOADING REQUESTING THE PID OF THE PROGRAM TO BE EDITED. THE PROGRAM WILL THEN READ CARDS LOOKING FOR A SKELETON WITH THE PID OF THE PROGRAM TO BE EDITED. WHEN THIS IS FOUND THE PROGRAM WILL ASK A SERIES OF QUESTIONS VIA THE 1816 AND THE CE MUST RESPOND TO EACH.

AFTER EACH RESPONSE THE END OF FIELD (EOF) KEY MUST BE DEPRESSED. WHEN MAKING MULTIPLE ENTRIES A COMMA MUST BE TYPED AFTER EACH GROUP AND EOF AFTER THE LAST ENTRY. IN CASE OF AN ERROR OR CORRECTIONS SEE SECTION 3.7.

3.4 PROGRAM TERMINATION

A MESSAGE WILL BE PRINTED TO INDICATE ALL NECESSARY DATA HAS BEEN RECEIVED AND THE EDIT INFORMATION WILL BE PUNCHED VIA THE METHOD SELECTED IN SECTION 3.3. THE PROGRAM THEN LISTS ALL THE EDIT INFORMATION SO A RECORD MAY BE MAINTAINED. A MESSAGE AND A PROGRAM WAIT TERMINATES THE PROGRAM.

3.5 RERUN OR RESTART PROCEDURE

FOR EITHER RERUN OR RESTART PLACE THE DESIRED SKELETON (TO SELECT A SKELETON SEE 3.2) IN THE READER AND PUSH START. A REQUEST FOR PID MESSAGE WILL INDICATE A SUCCESSFUL RETRY. IF THIS PROCEDURE FAILS, SEE SECTION 3.1 PROGRAM LOADING.

A. RERUN
AFTER THE READER IS READY PRESS START.

B. RESTART
AFTER THE READER IS READY PRESS STOP, RESET, AND START.

3.6 PROGRAM WAITS

PROGRAM WAITS ARE IDENTIFIED BY THE B AND I REGISTER AND ARE FOUND AT THE BEGINNING OF THE LISTING. THE FOLLOWING IS AN EXAMPLE.

```
************************************************************************
B-REG    I-REG                     WAITS        COMMENTS
************************************************************************
3DDF     01E0               DC     WAITF+1      IN THIS AREA IS A
                     *                          DESCRIPTION OF THE
                     *                          ABOVE WAIT.
                     *
                     *
                     *
```


3.7 ERROR PROCEDURE

ERRORS WILL FALL INTO TWO TYPES.

A. REPEAT FIELD

AN ERROR MESSAGE INDICATES A PROGRAM FOUND ERROR BECAUSE OF INCORRECT FORMAT OR THE ERASE FIELD KEY (ER FLD) HAS BEEN DEPRESSED. ALL THE DATA ENTERED SINCE THE LAST COMMA HAS BEEN ERASED. THE LINE WITH THE ERROR WILL CONTAIN THREE ASTERISKS.

B. REPEAT CHARACTER

IF THE CE WISHES TO CORRECT THE LAST CHARACTER TYPED HE WILL PRESS ERASE CHARACTER KEY (ER CHR). THE TYPEWRITER WILL BACKSPACE AND THE CORRECT CHARACTER WILL BE TYPED OVER THE ERROR CHARACTER. IF AN OVERPRINT IS NOT DESIRABLE, MANUALLY LINE FEED BEFORE TYPING THE CORRECT CHARACTER.

4. PRINTOUTS

4.1 STATUS MESSAGES BEGIN WITH AN A AND WILL TELL OF SOME CONDITION.

MID	PROG	MESSAGE
A001	CNTRL	EDIT CARD LIST
		ALL NECESSARY DATA HAS BEEN ENTERED AND THE INFORMATION WILL BE PUNCHED AND LISTED.
A002	CNTRL	END OF PRG
		THE PROGRAM IS FINISHED FOR THE PID SELECTED. IF ANOTHER PID IS TO BE SELECTED SEE SECTION 3.5.

4.2 COMMAND MESSAGES BEGIN WITH A C AND REQUESTS ACTION BY THE CE FOR THE CONTINUATION OF THE PROGRAM.

THE LIST OF CHARACTER AND MEANING THAT WILL BE FOUND IN COMMAND MESSAGES.

VVVV - A DEVICE, SUCH AS 1442, CONSOLE INTERRUPT, OR MONITOR OUTPUT. IT WOULD INCLUDE FIRST OR SECOND DEVICE.
W - MAG TAPE DRIVE 0 OR 1.
XX - PID OF PROGRAM BEING EDITED.
ZZ - CARD NUMBER

MID	PROGRAM	MESSAGE
C000	CNTRL	ENTER 2 DIGIT PID TO BE EDITED.
		ENTER THE PID OF THE PROGRAM THAT IS TO BE EDITED.
C001	PID XX-CD ZZ	ENTER 2 DIGIT DECIMAL INTERPT LVL FOR VVVV.
C002	PID XX-CD DD	ENTER 2 DIGIT DECIMAL ILSW BIT FOR VVVV.
C003	PID XX-CD DD	ENTER 1 DIGIT DECIMAL CH FOR VVVV.
C004	PID XX-CD DD	ENTER NUMBER OF VVVV ON SYSTEM, 1 DIGIT.
C005	PID XX-CD DD	DOES THIS SYSTEM HAVE 2 VVVV-TYPE Y OR N.

C006 PID XX-CD 00 ARE AORS REFERENCE CHANGES DESIRED-TYPE Y OR N.

IF THE ADDRESSES NORMALLY USED BY THE PROGRAM, ARE KNOWN TO BE BAD, ANSWER Y.

C007 PID XX-CD 00 ENTER 1 DIGIT DECIMAL FLD NUMBER TO BE CHANGED FOLLOWED BY 3 DIGIT DECIMAL ADRS DESIRED-1-8 ENTRIES IN FOLLOWING FORMAT
D DDD,.

C008 PID XX-CO 00 ENTER 4 DIGIT HEX TIMER BASE FOR INT TIMER A.

TIME BASE OF TIMER A IN MILLISEC.	CONSTANT ENTERED IN HEX
128.000	0001
64.000	0002
32.000	0004
16.000	0007
8.000	000E
4.000	001B
2.000	0036
1.000	006B
.500	00D6
.250	01AB
.125	0356

C009 PID XX-CO 00 ENTER AI MODEL-TYPE 1 OR 2.

C00A PIO XX-CD 01 ENTER 5 DIGIT DECIMAL CYCLE COUNT.

THIS COUNT DETERMINES THE NUMBER OF TIMES EACH SPECIFIED MULTIPLEX ADDRESS IS READ AND CONVERTED. THE COUNT MAY BE ANY NUMBER FROM 00001 TO 32000.

C00B PID XX-CD ZZ SHOULD FIRST RDING BE PREC VOLT-TYPE Y, OR N.

IF IT IS DESIRED TO ENTER PRECISION VOLTAGES TYPE N. IF Y IS TYPED THE AI PROGRAM WILL USE THE FIRST ENTRY RECEIVED AS THE PRECISION VOLTAGE.

C00C PID XX-CD ZZ RELOAD TO CORRECT THIS ERROR OR PRESS START TO IGNORE.

THIS MESSAGE OCCURS ONLY ON A 4K SYSTEM. IF IGNORED THE ERROR WILL BE PUNCHED AND LISTED AT THE COMPLETION OF THE PROGRAM. THE ERRORS THEN MAY BE MANUALLY CORRECTED.

C00D PIO XX-CD ZZ IS EXT SYNC DESIRED-TYPE Y OR N.

C00E PID XX-CD 00 IS IT DESIRED TO CHANGE THE DLY CONSTANT - TYPE Y OR N.

IF A DELAY OF OTHER THAN THE STANDARD IS DESIRED, TYPE Y.

C00F PID XX-CD 00 ENTER 2 DIGIT HEX DELAY CONSTANT.

C01D PIO XX-CO 0D IS MEMORY SPEED FOR THIS SYS 2 MICRSEC-TYPE Y OR N.

C011 PIO XX-CD DD ENTER 2 DIGIT DECIMAL AREA CODE FOR VVVV.

C012 PID XX-CD DD DOES THIS SYSTEM HAVE A VVVV-TYPE Y OR N.

C013 PID XX-CO 00 IS DRIVE W A 9 TRK DRIVE-TYPE Y OR N.

C014 PID OI-CD 02 ENTER DEVICE INFO IN THE FOLLOWING FORMAT.
1-4D DEVICES - SPACE BETWEEN ENTRIES,
IL ILSW CH AC MOD.

DD DO H DO HH,

D - DECIMAL CHARACTER.
H - HEXADECIMAL CHARACTER-ENTER 0-B OR F FOR CHANNEL.

ONE LINE OF INFORMATION IS ENTERED FOR EACH DEVICE ON THE SYSTEM.

C015 PID DB-CD D1 IS IT DESIRED TO CHANGE WD CTS-TYPE Y OR N.

IF WORD COUNTS OTHER THAN THOSE NORMALLY USED BY THE 2400 IS PROGRAM ARE DESIRED, TYPE Y.

C016 PID DB-CD 01 ENTER REC TO CHANGE AND WD CT DESIRED IN FOLLOWING FORMAT
0 DDDD,

1 TO 8 LINES OF ENTRIES MAY BE MADE. THE FIRST DIGIT IS THE RECORD NUMBER TO CHANGE (1-8) AND THE FOUR DIGIT ENTRY IS THE DESIRED DECIMAL WORD COUNT (0001-1000).

C017 PID 21-CD D0 IS COMPARATOR FEATURE INSTALLED-TYPE Y OR N.

C018 PIO 21-CD DA IS OVERLAP CHECK DESIRED-TYPE Y OR N.

C019 PIO 21-CD 1B ENTER 3 DIGIT DECIMAL WD CT 1-100.

THIS VALUE (001-100) WILL SPECIFY THE NUMBER OF MULTIPLEX ADDRESSES TO BE USED FROM THE AIIAT TABLE. A COUNT OF ONE MUST BE ADDED TO THE WORD COUNT FOR EACH TIME CHAINING IS SPECIFIED.

C01A PIO 21-CO 1C IS OVERLAP CARD INSTALLED-TYPE Y OR N.

C01B PIO 21-CO 1D SHOULD LIMIT WDS BE HONDRED-TYPE Y OR N.

C01C PIO XX-CD D4 ENTER 2 DIGIT DECIMAL RESOLUTION.

TYPE EITHER, 08,11, OR 14.

C01D NOT USED

C01E NOT USED

C01F PIO XX-CO 06 ENTER DECIMAL ADDRESSES.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-100 LINES MAY BE ENTERED. IF AN ADDRESS HAS A LIMIT WORD, TYPE 'L' IN THE SPACE INDICATED. (SEE LINE 1) IF THERE IS NO LIMIT WORD, TYPE THE COMMA AFTER THE ADDRESS (SEE LINE 3) IF CHAINING IS DESIRED, TYPE 'C' ON THE NEXT LINE AFTER THE ADDRESS. (SEE LINE 2) A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

```
MPX
ADDR
10XXX L,          ( SOLID STATE ADDR.  THAT
                    HAS LIMIT WORD)
C,                ( CHAIN TO NEXT ADDRESS)
10XXX,            ( SOLID STATE ADDR. WITH NO
                    LIMIT WORD)
C,                ( CHAIN TO NEXT ADDRESS )
10XXX (PRESS EOF  ( SOLID STATE ADDR. WITH NO
      KEY )         LIMIT WORD AND NO CHAINING)
```

C020 PIO 21-CO 10 ARE LMT CK WDS DESIRED-TYPE Y OR N.

C021 PID 21-CO 10 ENTER LMT WD DATA FOR ADR.

THE INPUT MUST FOLLOW THIS FORMAT. THERE WILL BE ONE C021 MESSAGE FOR EACH MPX ADDRESS THAT IS TO BE LIMIT CHECKED.

```
RANGE PREC VOLT LIMIT WORD
XXX Yxxx.xxxxx +xxx -xxx (PRESS EOF KEY)
                    NOTE
       'Y' IS THE SIGN OF THE PREC VOLT VALUE, IT
       MUST BE EITHER '+' OR '-'.
```

C022 PID XX-CO ZZ ENTER DECIMAL ADDRESS AND RANGE.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

MPX ADDR	RANGE CONSTANT	RANGE	RANGE TABLE CONSTANT TO ENTER
XXXXX	XXX,	500 MV	500
XXXXX	XXX,	200 MV	200
XXXXX	XXX,	100 MV	100
XXXXX	XXX,	50 MV	050
XXXXX	XXX	20 MV	020
(PRESS EOF KEY)		10 MV	010
		5 VOLTS	005

C023 PIO XX-CO ZZ ENTER DECIMAL ADDRESS, RANGE AND PREC VOLT.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. SEE MESSAGE C022 FOR RANGE TABLE. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

ADDR	RANGE	PREC	VOLT VALUE	NOTE
XXXXX	XXX	YXXX.XXXXX,		'Y' IS THE SIGN OF
XXXXX	XXX	YXXX.XXXXX,		THE PREC VOLT VALUE.
XXXXX	XXX	YXXX.XXXXX.		IT MUST BE EITHER
XXXXX	XXX	YXXX.XXXXX,		'+' OR '-'.
XXXXX	XXX	YXXX.XXXXX,	(PRESS EOF KEY)	

C024 PID 22-CO 06 ENTER DECIMAL ADDRESS AND WD CTS FOR THE AIIAT TBL.

EACH MPX ADDRESS IS FOLLOWED BY A WORD COUNT TO DETERMINE THE LENGTH OF THE SEQUENTIAL TABLE. A MAXIMUM OF FIVE SEQUENTIAL TABLES MAY BE CHAINED TOGETHER TO A TOTAL WORD COUNT OF 150.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

```
ADDR  WD CT
XXXXX XXX,
XXXXX XXX,
XXXXX XXX,
XXXXX XXX,
XXXXX XXX ( PRESS EOF KEY)
```

C025 PIO 23-COS 2,4,5 ENTER DECIMAL ADR, RESOL AND RANGE.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. SEE MESSAGE C022 FOR RANGE TABLE A 1 IN THE HIGH ORDER POSITION OF MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDR INDICATES A SOLID STATE POINT. PRESS THE EOF AFTER THE LAST LINE.

```
ADDR  RES RANGE
XXXXX XX XXX,
XXXXX XX XXX,
XXXXX XX XXX,
XXXXX XX XXX,
XXXXX XX XXX  (PRESS EOF KEY )
```

C026 PID 23-COS 2-5 ENTER DECIMAL ADR, RESDL, RANGE, PREC VOLT.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. SEE MESSAGE C022 FOR RANGE TABLE. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

ADDR	RES	RANGE	PREC	VOLT VALUE	NOTE
XXXXX	XX	XXX	YXXX.XXXXX,		'Y' IS THE SIGN
XXXXX	XX	XXX	YXXX.XXXXX,		OF THE PREC VOLT
XXXXX	XX	XXX	YXXX.XXXXX,		VALUE. IT MUST
XXXXX	XX	XXX	YXXX.XXXXX,		BE EITHER '+'
XXXXX	XX	XXX	YXXX.XXXXX	(PRESS EOF KEY)	OR '-'

C027 PID 23-CO 06 IS RANDOM MODE DESIRED-TYPE Y OR N.

C028 PIO 23-CO 08 ENTER 1 DIGIT WD COUNT FROM 1 TO 5.

A NUMBER FROM 1-5 IS ENTERED TO INDICATE THE NUMBER OF MULTIPLEX ADDRESSES IN THE AIMPX TABLE TO BE USED.

C029 PIO 24-CD 0D ENTER 2 DIGIT DECIMAL NUMBER OF DIGITAL INPUT GROUPS ON THE SYSTEM.

(01-24)

C02A PIO 25-C0 0D ENTER 3 DIGIT DECIMAL NUMBR OF HIGHEST DIGITAL INPUT ADRS AVAILABLE ON THIS SYSTEM.

(064-127)

C02B PIO 25-C0 00 ARE PISW ENTRIES DESIRED-TYPE Y OR N.

C02C PID 25-C0 00 ENTER DESIRED IL ILSW FOR PISWS-1 TO 24 ENTRIES IN FOLLOWING FORMAT
0D DD,.

C02D PIO 86-CD 00 ENTER 2 DIGIT HEX MODIFIER FOR 2ND 1442.

C02E PID 86-C0 00 IS MAG TAPE OR A 2402-TYPE Y OR N.

C02F PID 89-CD 00 ENTER 1 DIGIT DECIMAL MODEL OF DRIVE W-TYPE 1, 2 OR 3.

C030 PID 80-C0 00 NO OR HAS BEEN EDITED AS A 9 TRK DRIVE-THIS PROG THEREFORE IS ILLEGAL TO RUN ON THIS SYSTEM-DO YOU DESIRE TO CHANGE ENTRIES-TYPE Y OR N.

C031 PID 8E-C0 00 IS A WORD COUNT OTHER THAN 321 DESIRED-TYPE Y OR N.

C032 PIO 8E-C0 00 ENTER 4 DIGIT DECIMAL WORD COUNT.

C033 PIO 8E-C0 00 THE WORD COUNT ENTERED WILL FORCE DSW ERRORS DURING THE PROGRAM RUN-IS THIS DESIRED-TYPE Y OR N.

C034 PID 8E-CD 00 IS A PATTERN OTHER THAN FFFF DESIRED-TYPE Y OR N.

C035 PIO 8E-C0 00 ENTER 4 DIGIT HEX PATTERN DESIRED.

C036 PID 06-C0 00 IS THE ABOVE IO NUMBER FOR VVVV-TYPE Y OR N.

C037 PID 06-CD D0 ENTER 1 DIGIT TYPEWRITER ID NUMBER 1-8.

C038 PIO 0A-C0 00 DOES 1443 HAVE 120 PRINT POSITIONS-TYPE Y OR N.

4.3 ERROR MESSAGES WILL BEGIN WITH AN E AND INDICATE A FAILURE OR AN INCORRECT ENTRY. FOR ERROR CORRECTION SEE SECTION 3.7.

MIO PROG MESSAGE

E001 LINE CANCELLED.

ALL THE DATA ENTERED HAS BEEN ERASED FOR THE LAST ENTRY UNLESS MULTIPLE ENTRIES AND THEN IT WILL BE ERASED TO THE LAST COMMA. THE LINE WITH THE ERROR WILL CONTAIN THREE ASTERISKS.

E002 CNTRL ENTRY TOO LARGE.

THE DATA ENTERED WAS LARGER THAN THE LIMITS FOR A GIVEN CONDITION. THE QUESTION WILL BE REPEATED.

E003 CNTRL ILLEGAL ENTRY.

THE DATA ENTERED WAS NOT REQUESTED. SOMETHING OTHER THAN Y OR N ON TYPE Y OR N, OTHER THAN 0-9 ON DECIMAL ENTRY, OR OTHER THAN 0-9 A-F ON HEX ENTRY.

E004 CNTRL FORMAT ERROR.

THE DATA ENTERED WAS NOT IN THE PROPER FORMAT. THE QUESTION WILL BE REPEATED.

E005 CNTRL 1442 ERROR.

THE 1442 WAS NOT READY OR AN ERROR WAS DETECTED.

E006 PID XX-CD ZZ 2 OR MORE ENTRIES ARE IDENTICAL.

E007 PID XX-CD ZZ ENTRY TOO LARGE OR 0000.

E008 PID XX-CD D0 ADRS WAS BETWEEN 90 AND 110.

E009 PID XX-CD 00 NUMBER OF DEVICES WAS GREATER THAN 3.

EDDA PID XX-C0 ZZ ADRS IS TOO GREAT.

E00B PID XX-C0 00 NUMBER OF DEVICES WAS 0000.

E0DC PID XX-C0 DD ILLEGAL TIMER CONSTANT.

E00D PID XX-C0 0D ILLEGAL MODEL.

E00E PID XX-CD ZZ CYCLE COUNT OF 000D.

EDOF PID XX-CD ZZ AREA CODE WAS TOO LARGE.

E010 PIO XX-C0 ZZ IMPROPER NUMBER OF WDS.

TOO MANY LINES OF DATA OR TOO MANY OR TOO FEW CHARACTERS PER LINE WERE ENTERED.

E011 PID XX-C0 ZZ TOO MANY WORDS ON ONE CARD.

THIS PRINTOUT WILL OCCUR ONLY IF A COMPARE INSTRUCTION IS FAILING TO SKIP.

E012 PID 0B-C0 00 TOO LARGE A WD CT-MAX IS 1000.

E013 NOT USED

E014 NOT USED

E015 NOT USED

E016 PID 21-CD 00 HIGH VALUE LESS THAN LOW.

THE HIGH PRIORITY CHANNEL ENTERED IS GREATER THAN THE LOW.

E017 PIO 21-CD 1B ILLEGAL WD CT.

WORD COUNT ENTERED WAS ZERO OR GREATER THAN 1D0

E01B	PIO 21-CD 06	MORE THAN 2 RLY PTS. MORE THAN 2 RELAY PDINTS WERE ENTERED.
E019	PIO 21-CD 06	MOD 2 AND MORE THAN 1 RLY PT.
E01A	PIO 21-CD 06	RLY PT IN LAST ADRS-AIIAT TBL.
E01B	PIO 21-CD 06	LESS THAN 95 SS PTS BETWEEN RLY PT.
E01C E01D	PIO 21-CD 06 PIO 21-CD 1D	WD CT IS GREATER THAN NUMBER OF AIIAT ENTRIES. ENTRIES DO NOT MATCH. SCANNED THE AIIAT TABLE WITHDUT FINDING AN ADDRESS THAT WAS SPECIFIED IN THE AIMPX TABLE. EITHER THE ADDRESS IS MISSING OR THE ADDRESSES ARE NDT IN THE SAME SEQUENCE.
E01E	PIO 21-CD 10	LMT CK REQ WRONG. 1. LIMIT WORDS WERE ENTERED BUT COMPARATOR WAS NOT INSTALLED. 2. LIMIT WORDS WERE ENTERED BUT OPERATOR TYPED N IN REPLY TO MESSAGE C020. IN BOTH CASES THE PROGRAM PUTS ZEROS IN THE LIMIT WORD TABLE AND CONTINUES.
E01F	PID 21-CD 10	ATTEMPTED TO LMT CK RLY ADR IN OVERLAP.
E020		NOT USED
E021 C027	PIO 22-CD 2-6 PID 23-CD 06	FOUND NO MATCH OF ADR AND AIIAT ENTRIES. IS RANDOM MODE DESIRED-TYPE Y OR N.
C028	PID 23-CD 0B	ENTER 1 DIGIT WD COUNT FROM 1 TO 5. THE WORD COUNT (AIWC) WENT TO ZERO BEFORE ALL OF THE AIMPX ADDRESS WERE FOUND IN THE AIIAT TABLE.
E022		NOT USED
E023	PID 22-CD 06	WD CT GREATER THAN 150.
E024	PID 22-CD D6	WD CTS IN AIIAT TBL ARE ALL 0000.
E025	PID 23-CD 0B	ENTRY WAS 0000 OR GREATER THAN 5.
E026	PID 23-CD 2-B	WD CT IS GREATER THAN NUMBER OF AIMPX ENTRIES.
E027	PID 24-CD 00	NUMBER OF GROUPS ENTERED WAS TOO GREAT. CANNOT BE MORE THAN 64 GROUPS.
E028	PID 25-CD 0D	ADRS ENTERED WAS GREATER THAN 127.
E029		NOT USED
E02A	PID 25-CD 00	ADRS ENTERED WAS LESS THAN 64.
E02B	PID B6-CD 00	ILLEGAL MODIFIER.
E02C	PID B9-CD 0D	ENTRY WAS GREATER THAN 3.

5. COMMENTS

THE SKELETONS FOR THE PIO REQUESTED MUST BE LOADED BEHIND THE PROGRAM. (SEE SECTION 3.2 FOR SKELETON SELECTION) IF THE SELECTED SKELETON IS NOT FOUND THE PROGRAM WILL HANG UP IN THE LOADER AFTER SEARCHING ALL AVAILABLE SKELETONS. WHEN THE FIRST SKELETON OF THE SELECTED PIO IS FOUND IT IS LOADED INTO MEMORY. IF THIS IS THE 4K EDIT CONTROL PROGRAM (PID DBC2) THE SKELETONS WILL BE BROUGHT INTO MEMORY ONE AT A TIME, EACH ASKING ITS QUESTIONS. THE 8K EDIT CONTROL PROGRAM (PID DBC3) WILL BRING IN ALL SKELETONS BELONGING TO THE SELECTED PID.

AFTER ALL THE NECESSARY DATA FOR THE SELECTED PID HAS BEEN RECEIVED THE CARD READER WILL PASS ANY PUNCHED CARDS AND WHEN BLANK CARDS ARE FOUND BEGIN PUNCHING THE EDIT CARDS. IF THE PAPER TAPE VERSION IS USED THE PUNCH WILL START AS SOON AS THE NECESSARY DATA HAS BEEN RECEIVED. AFTER PUNCHING HAS BEEN COMPLETED THE PROGRAM LISTS THE EDIT INFORMATION FOR A RECORD.

MOST ERRORS THAT ARE FOUND BY THE PROGRAM WILL BE CORRECTED AT THE TIME THE DATA IS REQUESTED. IN THE 4K EDIT CONTROL PROGRAM IF THE CORRECTION CAN NOT BE ACCOMPLISHED AT THE TIME OF ENTRY, A MESSAGE OCCURS INDICATING THE PROGRAM AND SKELETONS MUST BE RELOADED OR PRESS START TO IGNORE THE ERROR AND MAKE THE CORRECTION MANUALLY AFTER THE EDIT INFORMATION HAS BEEN PUNCHED AND PRINTED. IN THE 8K EDIT CONTROL PROGRAM IT REINITIALIZES ALL SKELETONS AND CONTINUES FROM THE POINT OF ERROR.

ONLY ONE PIO MAY BE EDITED AT A TIME AND IF A SECOND EDITING IS REQUIRED SEE SECTION 3.5 FOR RERUN OR RESTART.

6. PROGRAMMERS GUIDE TO EDIT CONTROL USAGE

6.1 PURPOSE

IT IS THE INTENT OF THIS DOCUMENTATION TO SPECIFY HOW THE PROGRAMMER CAN TAKE ADVANTAGE OF COMMON ROUTINES WHEN WRITING SKELETONS TO RUN WIT EDIT CONTROL PROGRAM. EDIT CONTROL PROVIDES,

1. SHARING OF PREDEBUGGED COMMON ROUTINES.
2. INTERFACE BETWEEN SKELETON AND I/O DEVICES.
3. SEQUENCING OF SKELETON OPERATION WHEN SEVERAL SKELETONS ARE REQUIRED.
4. COMMON BLOCKS OF STORAGE FOR MULTIPLE USE.

6.2 RESERVED AREAS OF STORAGE

A. 'KEYIN'

THIS IS A BLOCK OF 60D WORDS USED TO STORE KEYBOARD ENTRIES AS THEY ARE RECEIVED. AT LOCATION 'KEYIN-1' IS A COUNT OF THE WORDS STORED IN 'KEYIN'. THIS BLOCK OF DATA AND THE WORD COUNT IS CLEARED BY CALL ON THE ROUTINE'KEY.' A TERMINATOR WORD OF /FFFF IS SET AS THE LAST WORD IN 'KEYIN' WHENEVER THE EOF KEY IS DEPRESSED FOLLOWING ANY KEYBOARD CODE. THIS AREA MAY BE USED AS TEMPORARY STORAGE BY SKELETONS BETWEEN CALLS ON THE ROUTINE 'KEY'

B. 'BINARY'

A BLOCK OF 16D WORDS USED TO STORE CONVERTED DATA. THIS DATA WILL BE EITHER DECIMAL OR HEXADECIMAL DEPENDING ON THE CONVERSION ROUTINE LAST USED BY THE SKELETON. A COUNT OF THE NUMBER OF WORDS CURRENTLY STORED IS CONTAINED IN LOCATION 'BINARY-1.'

C. 'ZERO'

THIS LOCATION CONTAINS A CONSTANT OF ZERO.

D. 'TERM'

THIS LOCATION CONTAINS A CONSTANT OF /FFFF.

E. 'STBF'

THIS STDRAGE LOCATION CONTAINS THE DISPLACEMENT OF THE NEXT LOCATION AVAILABLE IN THE BLOCK OF CDRE LABELED 'SEIB.' 'STBF' WILL BE PROPERLY UPDATED BY CONTROL IF EDIT CARDS ARE STORED IN CARD ORDER. IF IT IS DESIRED TO BUILD EDIT CARDS OUT OF SEQUENCE, THEN 'STBF' MUST BE MAINTAINED BY THE SKELETDN USER.

F. 'SEIB'

A BLOCK OF 322 WORDS USED FOR SAVING EDIT CARDS. THIS BLOCK MAY NDT BE REFERENCED DIRECTLY BY THE SKELETDN. HOWEVER, IT MAY BE REFERENCED THRU LABEL 'SRTRY+1' TO +323. THE NEXT AVAILABLE LOCATION MAY BE FOUND BY REFERENCE TO THE DISPLACEMENT CONSTANT CONTAINED IN LOCATION 'STBF.'

G. 'SRTRY'

THIS LOCATION SHOULD ALWAYS CONTAIN THE RETURN ADDRESS TO BE REFERENCED BY ROUTINE 'SER' IN CASE OF AN ERROR. THIS LOCATION MAY BE SET EITHER BY A DIRECT STDRE OR BY A CALL DN ROUTINE 'SSUER.'

6.3 RDUTINES AVAILABLE IN EDIT CONTROL

THE FOLLOWING IS A DESCRIPTION OF THE RDUTINES AVAILABLE AND THE CALL NECESSARY TO USE THE ROUTINE.

A. 'CKYN' - CHECK KEYBDRAD ENTRY FOR Y OR N.

```
BSI  I  CKYN
RETURN 1.
RETURN 2.
```

THE RDUTINE WILL CHECK THE KEYBOARD ENTRY STORED AT LOCATION 'KEYIN' FDR Y OR N. IF THE ENTRY IS Y, THE ROUTINE WILL RETURN TO RETURN 1. IF THE ENTRY IS N, THE ROUTINE WILL RETURN TO RETURN 2. THE ROUTINE WILL ACCEPT EITHER THE UPPER OR LOWER CASE ENTRY FDR THE Y AND N KEYS. IF THE ENTRY IS NEITHER Y OR N A CALL IS MADE DN ROUTINE 'SER' TO PRINT 'ILLEGAL ENTRY.'

B. 'ENDO' - END STATEMENT RETURN

```
END1  BSC  L  ENOD
      END     END1
```

IN ORDER TO PREVENT RELDCATION ERRORS DURING ASSEMBLY, EACH SKELETON MUST END WITH THE ABOVE TWO STATEMENTS. THE END STATEMENT WILL THEN GO TO LABEL 'END1' WHICH WILL BRANCH TO THE EDIT CDNTRDL PROGRAM AFTER LOADING OF EACH SKELETON.

C. 'HLT' - RELOAD WAIT

```
BSI  I  HLT
```

BRANCH TO A WAIT WITHIN THE EDIT CONTROL PROGRAM. THIS WAIT MUST BE USED WHEN AN ERROR REQUIRING RELOAD IS ENCOUNTERED.

D. 'KTYPS' - PRINT WITH ND CONVERSION

```
BSI  I  KTYPS
```

TILT CODE. THE MESSAGE ADDRESS MUST BE CONTAINED IN INDEX REGISTER 1. PRINTING IS TERMINATED WHEN /FFFF IS FOUND.

E. 'KEY' - PRINT EBCDIC AND READ KEYBOARD

```
BSI  I  KEY
DC      MESSAGE ADDRESS
DC      CONTROL WORD
```

ADDRESS PRINTING CDNTINUES UNTIL /FFFF IS FOUND. IF MESSAGE ADDRESS POINTS TO A /FFFF, NO PRINTING WILL TAKE PLACE.

AFTER PRINTING, BIT 0 OF THE CONTROL WDRD IS CHECKED FOR THE FOLLOWING,

BD - 0 - RETURN WITHOUT READING KEYBOARD
- 1 - READ THE KEYBOARD UNTIL EOF IS DEPRESSED.

BITS 6 AND 7 OF CONTROL WORD.

0D - STORE KEYBOARD ENTRIES IN 'KEYIN' AREA WITH NO CONVERSION.

01 - CONVERT KEYBOARD CHARACTERS RECEIVED (AS SPECIFIED BY BITS 8-11) TO DECIMAL AND STORE IN 'BINRY' AREA.

10 - CONVERT KEYBOARD CHARACTERS RECEIVED (AS SPECIFIED BY BITS 8-11) TO HEXADECIMAL AND STORE IN 'BINRY' AREA.

BITS 8-11 OF CONTROL WORD

WITH NO CONVERSION THIS IS THE MINIMUM NUMBER OF CHARACTERS TO ACCEPT.

WITH CDVERSION, THIS IS THE NUMBER OF KEYBOARD CHARACTERS TO CONVERT TO ONE DECIMAL OR HEXADECIMAL WORD.

F. 'SSUER' - SET ERROR RETURN

```
BSI  I  SSUER
```

STORE THE ADDRESS OF THE CALL IN LOCATION 'SRTRY' FOR POSSIBLE LATER USE BY ROUTINE 'SER.'

G. 'SER' - PRINT ERROR MESSAGE

```
BSI  I  SER
DC      MESSAGE ADDRESS
```

PRINT THE MESSAGE SPECIFIED BY MESSAGE ADDRESS AND RETURN TO THE ADDRESS CONTAINED IN LOCATION 'SRTRY.' MESSAGE IS TERMINATED BY /FFFF.

H. 'SIL' - CHECK FOR VALID INTERRUPT LEVEL

```
BSI  I  SIL
```

CHECKS THE DECIMAL ENTRY STORED AT LOCATION 'BINRY' FOR A VALID INTERRUPT LEVEL. IF THE ENTRY IS VALID, THE ROUTINE RETURNS WITH THE ENTRY IN THE A REGISTER IN BITS 0 THROUGH 7. IF THE ENTRY IS GREATER THAN 23, THIS ROUTINE WILL CALL ON ROUTINE 'SER' TO PRINT 'ENTRY TOO LARGE'.

I. 'SILSW' - CHECK FOR VALID ILSW BIT

```
BSI  I  SILSW
```

CHECKS THE DECIMAL ENTRY STORED AT LOCATION 'BINRY' FOR A VALID ILSW BIT. IF THE ENTRY IS VALID, THE ROUTINE RETURNS WITH THE ENTRY IN THE A REGISTER IN BITS 8 THROUGH 11. IF THE ENTRY IS GREATER THAN 15, A CALL IS MADE ON ROUTINE 'SER' TO PRINT 'ENTRY TOO LARGE'.

J. 'SCH' - CHECK FOR VALID CHANNEL

```
BSI  I  SCH
```

CHECKS THE HEXADECIMAL ENTRY STORED AT LOCATION 'BINRY' FOR A VALID CHANNEL. IF THE ENTRY IS VALID, THE ROUTINE RETURNS WITH THE ENTRY IN THE A REGISTER IN BITS 12 THROUGH 15. IF THE ENTRY IS GREATER THAN 8 AND IS NOT F, A CALL IS MADE ON ROUTINE 'SER' TO PRINT 'ENTRY TOO LARGE'.

K. 'SKIND' - CLEAR KEYIN AREA

```
BSI  I  SKIND
```

CLEARS THE BLOCK OF CORE LABELED 'KEYIN' TO ALL ZEROS.

L. 'SKINI' - SET KEYIN AREA

```
BSI  I  SKINI
```

SETS THE BLOCK OF CORE LABELED 'KEYIN' TO /FFFF.

M. 'PDKYB' - CONVERT KEYBOARD TO DECIMAL

```
BSI  I  PDKYB
DC      CHARACTERS PER WORD
DC      ADDRESS OF DISPLACEMENT
```

STARTING AT LOCATION 'KEYIN' + THE CONTENTS OF DISPLACEMENT ADDRESS, THIS ROUTINE WILL CONVERT TO ONE DECIMAL WORD THE NUMBER OF KEYBOARD CHARACTERS SPECIFIED BY CHARACTERS PER WORD. CONVERSION WILL CONTINUE UNTIL A TERMINATOR OF /FFFF IS FOUND.

N. PHKYB' - CONVERT KEYBOARD TO HEXADECIMAL

```
BSI  I  PHKYB
DC      CHARACTERS PER WORD
DC      ADDRESS OF DISPLACEMENT
```

THIS ROUTINE IS IDENTICAL TO ROUTINE 'PDKYB' EXCEPT THAT THE CONVERSION IS TO HEXADECIMAL.

O. 'SECSU' - SET EDIT CARD

```
BSI  I  SECSU
DC      ADDRESS OF DATA
```

INDEX REGISTER 1 MUST CONTAIN PID.
INDEX REGISTER 2 MUST CONTAIN CARD NUMBER.
INDEX REGISTER 3 MUST CONTAIN NUMBER OF ENTRIES.

THIS ROUTINE WILL SET ONE COMPLETE EDIT CARD INTO LOCATION 'SEIB + STBF.' THE CONTENTS OF 'STBF' WILL BE UPDATED BY THE ROUTINE TO THE NEXT AVAILABLE LOCATION AFTER THE EDIT CARD JUST STORED. 'STBF' MAY BE SET BY THE SKELETON IF IT IS DESIRED TO SET EDIT CARDS OUT OF SEQUENCE.

P. 'S2' - SKELETON EXIT

```
BSC  L  S2
```

THIS IS THE FINAL EXIT POINT, TO CONTROL, FOR EACH SKELETON. THE CONTROL SECTION WILL CHECK THE NEXT SKELETON FOR A TERM SKELETON, AND IF FOUND IT WILL PUNCH AND LIST THE EDIT CARDS. IF NOT FOUND THE NEXT SKELETON WILL BE ENTERED.

6.4 SKELETON REQUIREMENTS

EACH SKELETON MUST BE PRECEEDED BY A SERIES OF EQUATE STATEMENTS. (SEE SECTION 6.6). THE SKELETONS MUST BE RELOCATABLE AND THE ORIGIN STATEMENT MUST BE TO *+3095. NO SKELETON MAY EXCEED 1000 WORDS AND TOTAL SKELETONS FOR ANY ONE PID MUST NOT EXCEED 5000 WORDS. THE FIRST THREE WORDS OF EACH SKELETON ARE RESERVED FOR PID, CARD NUMBER AND NUMBER OF ENTRIES. THE FOURTH WORD MUST BE THE ENTRY POINT OF THE SKELETON . THESE FIRST FOUR WORDS MUST BE LABELED SKI1, SKI2, SKI3, AND SKI4. (SEE SECTION 6.7). EACH SKELETON MUST END AS EXPLAINED UNDER 'ENDO'. SECTIONS 6.6, 6.7, AND 6.8 CONTAIN A SAMPLE PROGRAM WHICH CAN BE USED FOR REFERENCE. MESSAGES AS SHOWN IN THE SAMPLE PROGRAM ARE IN STANDARD FORMAT AND THIS FORM SHOULD BE FOLLOWED. STANDARD MESSAGES PRESENTLY IN THE DOCUMENTATION SHOULD BE USED WHENEVER POSSIBLE TO PREVENT DOCUMENTATION CHANGES.

6.5 COMMENTS

ANY LABELS CONTAINED IN THE EQUATE STATEMENTS NOT EXPLAINED ABOVE ARE SPECIALIZED ROUTINES USED EXCLUSIVELY BY THE AI EDIT SKELETONS AND NEED NOT CONCERN THE USER.

6.6 EQUATE STATEMENTS

```
                ORG     *+3095
KEY             EQU     300
CKYN            EQU     KEY+1
SSUER           EQU     CKYN+1
SIL             EQU     SSUER+1
SILSW           EQU     SIL+1
SCH             EQU     SILSW+1
SER             EQU     SCH+1
SECSU           EQU     SER+1
SKINI           EQU     SECSU+1
SKINO           EQU     SKINI+1
POKYB           EQU     SKINO+1
PHKYB           EQU     PDKYB+1
ENDO0           EQU     PHKYB+1
S2              EQU     ENDD+2
BINRY           EQU     S2+4
KEYIN           EQU     BINRY+161
ZERO            EQU     KEYIN+60D
BGNR            EQU     ZERO+1
ERR             EQU     BGNR+1
WCC             EQU     ERR+1
MTRM            EQU     WCC+1
TRFX            EQU     MTRM+1
TERM            EQU     TRFX+1
LWC             EQU     TERM+1
LGROP           EQU     LWC+1
STBF            EQU     LGROP+1
SRTRY           EQU     STBF+1
KYTPS           EQU     SRTRY+323
HLT             EQU     KYTPS+1
CODE            EQU     HLT+1
```

6.7 PROGRAM SECTION

```
SKI1    DC      /00DB       PIO
SKI2    DC      /0000       CO NO
SK13    OC      /0002       NO OF ENTRIES
SKI4    BSI  I  SSUER       SET ERROR RETURN                SRC
        BSI  I  KEY         ENTER IL                        SRC
        OC      SM1
        DC      /B120
*
        BSI  1  SIL         CK IL
        STO  L  SWB1        SAVE                            SRC
*
        BSI  1  SSUER       SET ERROR RETURN                SRC
        BSI  I  KEY         ENTER ILSW                      SRC
        DC      SM2
        OC      /B120
*
        BSI  I  SILSW       CK ILSW BIT                     SRC
        EOR  L  SWBI        BUILO ODEF
        STO  L  SWB1        SAVE
*
        BSI  I  SSUER       SET ERROR RETURN                SRC
        BSI  1  KEY         ENTER CH                        SRC
        OC      SM3
        OC      /B210
*
        BSI  I  SCH         CK CHANNEL                      SRC
        EOR     SWB1        BUILD ODEF
        STO     SWB1        SAVE
*
        BSI  1  SSUER       SET ERROR RETURN                SRC
        BSI  1  KEY         2 ORS ON SYS                    SRC
```



```
        DC      SM4
        DC      /8000
*
        BSI  1  CKYN        CK FOR Y OR N                   SRC
        MDX     SK1         ENTRY WAS Y                     SRC
*
        LO      K0001       GET 1
        STO     SWB2        SET NOT AVAIL
        MDX     SK2
*
SK1     SLA     16          SET AVAIL
        STO     SWB2
*
SK2     LDX  11 SKI1        SET IXING
        LDX  I2 SKI2
        LDX  I3 SKI3
*
        BSI  1  SECSU       SET CARD                        SRC
        OC      SWB1                                        SRC
*
        BSI  I  SSUER       SET ERROR RETURN                SRC
        BSI  I  KEY         ARE WO CT CHGS DES              SRC
        OC      SM5
        DC      /8000
*
        BSI  I  CKYN        CK FOR Y OR N                   SRC
        MDX     SK3         ENTRY WAS Y
        MDX     SK4         ENTRY WAS N
*
SK3     LDX  11 SKI1        SET IXING
        LDX  I2 SKI5
        LOX  I3 SKI6
*
        BSI  1  SECSU       SET CARD                        SRC
        DC      SWB3
*
        BSC  L  S2          EXIT
*
SK4     BSI  I  SSUER       SET ERROR RETURN                SRC
        BSI  I  KEY         ENTER REC WD CT,                SRC
        DC      SM6
        DC      /8040
*
        LD   L  KEYIN-1     GET WO CT
        CMP     K0D56       CK FOR MAX
        MDX     SKE01       ERROR-TOO MANY
        NOP     0
SK5     LOX  L1 KEYIN       SET IX
        LD    1 0           GET ENTRY
        STO  L  KEYIN       SET
        LD   L  TERM        GET FFFF
        STO  L  KEYIN+1     SET
        BS1  1  PDKYB       CONVERT                         SRL
        DC      1
        DC      ZERO
        LO   L  BINRY       GET REC NO
        BSC  L  SKE05,+-    ERROR
        CMP     K000B       CK FOR MAX
        MPX     SKE04       TOO GREAT
        NOP     0
        STO     SK6+1       SET
SK6     LOX  L3 0           IX 3 = ENTRY
        MDX   1 2           INCR IX 1
        MOX  L  KEYIN-1,-2  OECR WD CT
        MDX     SK7
        BSI  I  SER         TOO FEW ENTRIES                 SRC
        OC      SE001
```

```
*
SK7     LD    I D          SET ENTRIES
        STO   L KEYIN
        LD    1 1
        STO   L KEYIN+1
        LD    1 2
        STO   L KEYIN+2
        LD    1 3
        STO   L KEYIN+3
        LO    L TERM
        STO   L KEYIN+4
*
        BSI   I POKYB      CONVERT                  SRC
        DC    4
        OC    ZERO
        LD    L BINRY      CK NUMBER
        CMP   K1000
        MOX   SKE03        ERROR TOO GREAT
        NOP   D
        STO   L3 SWB2      SAVE ENTRY
        MDX   1 5          INCR IX 1
        MOX   L KEYIN-1,-5 DECR WD CT
        MOX   S5           GET NEXT
        MOX   SK3          COMPLETE
*
K0001   OC    1            CONSTANTS
K0056   OC    56
K1000   OC    1000
K0008   OC    8
*
SWB1    OC    D            DATA STORAGE
SWB2    DC    0
SWB3    OC    9
        DC    D
        DC    0
        OC    0
        OC    D
        DC    0
        DC    D
*
SK15    OC    /00D1        CD ONE
SK16    OC    /0DD8        NO OF ENTRIES
*
SKE01   BSI   I SER        TOO MANY WD CTS          SRC
        DC    SE001
*
SKE03   BSI   I SER        WD CT TOO GREAT          SRC
        OC    SE0D3
*
SKED4   BSI   I SER        REC TOO GREAT            SRC
        DC    SEDD4
*
SKE05   BSI   I SER        FLD WAS ZERO             SRC
        OC    SEDD4
*
SE001   EBC   .E010  PID 0B-CD DD.
        EBC   .  IMPROPER NUMBER .
        EBC   .OF WDS.
        OC    /FFFF
*
SE003   EBC   .E012  PID DB-CD 00.
        EBC   .  TOO LARGE A WD C.
        EBC   .T-MAX IS 1000.
        DC    /FFFF
*
SE004   EBC   .E007  PID 0B-CD DD.
        EBC   .  ENTRY TOO LARGE .
```



```
        EBC   .OR 0000.
        DC    /FFFF
*
SM1     EBC   .C001  PIO 0B-C0 00.
        EBC   .  ENTER 2 DIGIT DE.
        EBC   .CIMAL INTR LVL FOR.
        EBC   . MAG TAPE.
        DC    /FFFF
*
SM2     EBC   .C002  PIO 0B-CD 00.
        EBC   .  ENTER 2 DIGIT DE.
        EBC   .CIMAL ILSW BIT FOR.
        EBC   . MAG TAPE.
        DC    /FFFF
*
SM3     EBC   .C003  PID 0B-CD D0.
        EBC   .  ENTER 1 DIGIT DE.
        EBC   .CIMAL CH FOR MAG T.
        EBC   .APE.
        DC    /FFFF
*
SM4     EBC   .C005  PIO 0B-C0 00.
        EBC   .  DOES THIS SYSTEM.
        EBC   . HAVE 2 TAPE DRS-T.
        EBC   .YPE Y OR N.
        OC    /FFFF
*
SM5     EBC   .C015  PIO 0B-CD 01.
        EBC   .  IS IT DESIRED TO.
        EBC   . CHANGE WD CTS-TYP.
        EBC   .E Y OR N.
        OC    /FFFF
*
SM6     EBC   .C016  PIO 0B-C0 D1.
        EBC   .  ENTER REC TO CHA.
        EBC   .NGE AND WD CT DESI.
        EBC   .RED, 1-B ENTRIES I.
        EBC   .N FOLLOWING FORMAT.
        EBC   .$0 0000,.
        DC    /FFFF
END1    BSC   L ENDO
        END   END1
```

6.8 TERM SKELETON

```
                ORG     *+3095
KEY             EQU     30D
CKYN            EQU     KEY+1
SSUER           EQU     CKYN+1
SIL             EQU     SSUER+1
SILSW           EQU     SIL+1
SCH             EQU     SILSW+1
SER             EQU     SCH+1
SECSU           EQU     SER+1
SKIN1           EQU     SECSU+1
SKIN0           EQU     SKIN1+1
PDKYB           EQU     SKIN0+1
PHKYB           EQU     PDKYB+1
END0            EQU     PHKYB+1
S2              EQU     END0+2
BINRY           EQU     S2+4
KEYIN           EQU     BINRY+161
ZERO            EQU     KEYIN+600
BGNR            EQU     ZERO+1
ERR             EQU     BGNR+1
WCC             EQU     ERR+1
MTRM            EQU     WCC+1
TRFX            EQU     MTRM+1
TERM            EQU     TRFX+1
LWC             EQU     TERM+1
LGROP           EQU     LWC+1
STBF            EQU     LGROP+1
SRTRY           EQU     STBF+1
KYTPS           EQU     SRTRY+323
HLT             EQU     KYTPS+1
CODE            EQU     HLT+1
SKI1            DC      /0DDB
SKI2            DC      /FFFF
SKI3            DC      0
SKI4            DC      0
END1            BSC  L  END0
                END     END1
```

---------- LAST PAGE ----------

```
02BC                    ABS
                        ORG     /3001                                   8C200010
                *                                                       8C200020
                *                                                       8C200030
                ********************************************************8C200040
3001 0  0772            DC      WAIT1+1     1816 IS OUT OF FORMS.       8C200050
                *                           MAKE READY AND PRESS        8C200060
                *                           START.                      8C200070
                ********************************************************8C200080
                *                                                       8C200090
3002 0  075C            DC      WAIT2+1     1816 IS HUNG IN BUSY.       8C200100
                *                           RESTART IS REQUIRED.        8C200110
                ********************************************************8C200120
                *                                                       8C200130
                ********************************************************8C200140
3003 0  0983            OC      WAIT3+1     1442 IS NOT READY           8C200150
                *                           BEFORE A READ.              8C200160
                *                           MAKE READY AND PUSH         8C200170
                *                           START.                      8C200180
                ********************************************************8C200190
                *                                                       8C200200
3004 0  098A            OC      WAIT4+1     1442 READ ERROR.            8C200210
                *                           RELOAD CAROS AND            8C200220
                *                           PUSH START TO RETRY.        8C200230
                ********************************************************8C200240
                *                                                       8C200250
                ********************************************************8C200260
3005 0  08E7            OC      WAIT5+1     RELOAD REQUIRED TO          8C200270
                *                           CORRECT ERROR-PRESS         8C200280
                *                           START TO IGNORE.            8C200290
                ********************************************************8C200300
                *                                                       8C200310
                ********************************************************8C200320
3006 0  0907            OC      WAIT6+1     1442 IS NOT READY           8C200330
                *                           BEFORE PUNCH.  MAKE         8C200340
                *                           READY AND PRESS START.      8C200350
                ********************************************************8C200360
                *                                                       8C200370
                ********************************************************8C200380
3007 0  090E            OC      WAIT7+1     1442 PUNCH ERROR.           8C200390
                *                           PRESS START TO RETRY.       8C200400
                ********************************************************8C200410
                *                                                       8C200420
                ********************************************************8C200430
3008 0  05E0            DC      WAIT8+1     END OF PROGRAM.             8C200440
                *                           LOAD SKELETONS AND          8C200450
                *                           PRESS START TO RERUN.       8C200460
                ********************************************************8C200470
3009                    DRG     300                                     8C200480
0C17    SKII    EQU     3095                                            8C200490
0C18    SKI2    EQU     SKII+1                                          8C200500
0C19    SKI3    EQU     SKI2+1                                          8C200510
0C1A    SKI4    EQU     SKI3+1                                          8C200520
012C 0  05E7    KEY     DC      KEYE                                    8C200530
0120 0  077A    CKYN    OC      CKYNE                                   8C200540
012E 0  079A    SSUER   OC      SSUEE                                   8C200550
012F 0  07A1    SILL    DC      SILE                                    8C200560
0130 0  07AF    SILSW   DC      SILSE                                   8C200570
0131 0  078A    SCH     OC      SCHE                                    8C200580
0132 0  07C8    SER     DC      SERE                                    8C200590
0133 0  07D5    SECSU   DC      SECSE                                   8C200600
0134 0  0803    SKIN1   DC      KIN1                                    8C200610
0135 0  080E    SKINO   DC      KINO                                    8C200620
0136 0  0818    POKYB   DC      OKYB                                    8C200630
0137 0  0821    PHKYB   DC      HKYB                                    8C200640
0138 00 4C800A94 END0   BSC  1  RDSK                                    8C200650
013A 00 4C0005B9 S2     BSC  L  END1                                    8C200660
013C 0  0000            OC      0                                       8C200670
                                                                        8C200680
```



```
013D 0  0000    BWC     DC      0       BINARY WORD COUNT               8C200690
013E    00A0    BINRY   BSS     160                                     8C200700
                ********************************************************8C200710
01DE 0  0000    KIWC    DC                                              8C200720
010F    0258    KEYIN   BSS     600                                     8C200730
                ********************************************************8C200740
0437 0  0000    ZERO    DC      /0000                                   8C200750
0438 0  0AB4    BGNR    DC      LBGNR                                   8C200760
0439 0  0AC1    ERR     DC      LERR                                    8C200770
043A 0  0AC5    WCC     DC      LWCC                                    9C200780
043B 0  0ACD    MTRM    DC      LMTRM                                   8C200790
043C 0  0AE5    TRFX    DC      LTRFX                                   8C200800
043D 0  FFFF    TERM    DC      /FFFF                                   8C200810
043E 0  0000    LWC     OC                      WC STORAGE              8C200820
043F 0  0000    LGRDP   DC                      GROUP COUNTER           8C200830
0440 0  0000    STBF    DC      0               DISPLACEMENT            8C200840
0441 0  0000    SRTRY   DC      /0000                                   8C200850
                *                                                       8C200860
                *                                                       8C200870
                ********* EDIT IMAGE BUFFER **********                  8C200880
0442 0  0000    SEIB    DC      /0000                                   8C200890
0443    0141            BSS     321                                     8C200900
0584 0  0768    KTYPS   DC      KTYP                                    8C200910
0585 0  0BE5    HLT     DC      HLTE                                    8C200920
0586 0  0A69    CODE    DC      KTILT                                   8C200930
0588    0000            BSS  E  0                                       8C200940
0588 00 4C000588 SRST   BSC  L  START   RESTART                         8C200950
                *                                                       8C200960
                *               CONTROL SECTION                         8C200970
                *                                                       8C200980
058A 0  1000    STAR1   NOP     0                                       8C200990
0588 00 C40005E2 START   LD   L  K3095  SET LOR CONSTANTS               8C201000
058D 00 D400006F         STO  L  /006F  *                               8C201010
058F 00 D4000125         STO  L  /0125  *                               8C201020
0591 0  1010             SLA     16     *                               8C201030
0592 00 D4000127         STD  L  /0127  *                               8C201040
0594 00 D4000440         STO  L  STBF                                    8C201050
                *                                                       8C201060
0596 0  C8F1             LDD     SRST   SET RESTART                     8C201070
0597 00 DC000000         STD  L  /0000  *                               8C201080
0599 00 4480012E S1      BSI  I  SSUER  SET ERROR RETURN         SRC    8C201090
0598 00 4480012C         BSI  I  KEY    REQ PID                  SRC    8C201100
059D 0  0BB8             DC      SM2                             SRC    8C201110
059E 0  8220             OC      /8220                                  8C201120
                *                                                       8C201130
059F 00 C400013E         LO   L  BINRY  GET PID REQUESTED               8C201140
05A1 00 B40005E6         CMP  L  KOOFF                                   8C201150
05A3 0  703F             MDX     ERR04                                  8C201160
05A4 0  1000             NDP     0                                      8C201170
05A5 0  D038             STO     XPID   SAVE                            8C201180
                *                                                       8C201190
05A6 00 44000A94 S2E     BSI  L  RDSK   READ A SKELETON           SRC    8C201200
                *                                                       8C201210
05A8 0  C80F             LDD     SRST   SET RESTART                     8C201220
05A9 00 DC000000         STD  L  /0000  *                               8C201230
                *                                                       8C201240
05A8 00 C4000C17         LO   L  SKI1   GET PID READ                    8C201250
05A0 00 F40005E1         EOR  L  XPID   IS IT DESIRED                   8C201260
05AF 00 4C2005B9         BSC  L  END1,Z NO                              8C201270
0581 00 C4000C18         LO   L  SKI2   GET CD NO                       8C201280
0583 00 F400043D         EOR  L  TERM   IS IT TERM                      8C201290
0585 00 4C1805C3         BSC  L  STTRM,+- YES                           8C201300
05B7 00 4C000C1A         BSC  L  SK14   GO TO SKELTON                   8C201310
                *                                                       8C201320
05B9 00 C40005E2 END1    LD   L  K3095  RESET LOADER CNSTS              8C201330
05BB 00 D400006F         STO  L  /006F  *                               8C201340
05BD 00 04000125         STO  L  /0125  *                               8C201350
                                                                        8C201360
```

4K EDIT CONTROL

```
058F 0  1010              SLA      16        *                               8C201370
05C0 00 04000127          S7O   L  /0127     *                               8C201380
05C2 0  70E3              MOX      S2E       READ NEXT SKELTON               8C201390
                   *                                                          8C201400
05C3 00 C4000440   S7TRM LO     L  ST8F      COMPU7E ADRS                    8C201410
05C5 00 84000801         A      L  ST8F1     *                               8C201420
05C7 0  0001             STO       *+1       SAVE                            8C201430
05C8 00 65000000         LOX    L1 0                                         8C201440
05CA 00 C4000C17         LD     L  SKI1      GET PID                         8C201450
05CC 0  D100             STO    1  0                                         8C201460
05C0 00 C4000430         LD     L  TEPM      GET TERMINA7ION                 8C201470
05CF 0  0101             STO    1  1         SET                             8C201480
0500 00 44000907         BS1    L  PECOR     PUNCH E0I7              SRC     8C201490
0502 0  1010             SLA       16        CLEAR 0ISPL                     8C201500
05D3 00 04000440         STO    L  STBF      *                               8C201510
                   *                                                          8C201520
05D5 00 65000142         LOX    L1 322       CLEAR E0I7 BFR                  8C201530
0507 00 04000441   STTR  STO    L  SE18-1    *                               8C201540
0509 0  71FF             MOX    1  -1                                        8C201550
050A 0  70FC             MOX       S7TR                                      8C201560
0508 00 4480012C         8S1    1  KEY       PROG END                SRC     8C201570
0500 0  08D1             OC        SM33                                      8C201580
05DE 0  0000             DC        0                                         8C201590
                   *                                                          8C201600
050F 0  3008       WAI78 WA17      8         PROGRAM END                     8C201610
05E0 0  70AA             MOX       START     RESTART PROG                    8C201620
                   *                                                          8C201630
05E1 0  0000       XP10  OC        0         CONS7ANTS                       8C201640
05E2 0  0C17       K3095 DC        3095                                      8C201650
05E3 00 44800132   ERR04 8S1    I  SER                                       8C201660
05E5 0  08A0             DC        SE002                                     8C201670
05E6 0  00FF       K00FF OC        /00FF                                     8C201680
                   *                                                          8C201690
                   *                                                          8C201700
                   *                                                          8C201710
                   *                 PRINTER I/O ROU7INE                     8C201720
                   *                                                          8C201730
                   *                 CALL    8SI   KEY                       8C201740
                   *                         DC    MSGAO                     8C201750
                   *                         DC    IO                        8C201760
                   *                                                          8C201770
                   *                 IO   8IT 0  KEY8OARO                    8C201780
                   *                      XOXX   NO CONV                     8C201790
                   *                      X1XX  DEC CONV                     8C201800
                   *                      X2XX  HEX CONV                     8C201810
                   *                                                          8C201820
05E7 0  0000       KEYE  OC        /0000                                     8C201830
05E8 0  6941             S7X    1  KEY96+1   SAVE S7ATUS                     8C201840
05E9 0  6A42             S7X    2  KEY97+1                                   8C201850
05EA 0  6843             STX    3  KEY98+1                                   8C201860
05E8 00 0C000A22         STD    L  KAQ                                       8C201870
05ED 0  2843             STS       KEY99                                     8C201880
                   *                                                          8C201890
05EE 00 C48005E7         LO     I  KEYE      FETCH MESS ADRS                 8C201900
05F0 00 D4000A1C         STO    L  KMSG                                      8C201910
05F2 00 740105E7         MOX    L  KEYE,1    POIN7 TO IO                     8C201920
                   *                                                          8C201930
05F4 00 65000A10         LOX    L1 KOU7      SET CARRIER RETURN              8C201940
05F6 00 C4000A79         LO     L  KCR                                       8C201950
                   *                                                          8C201960
05F8 0  1808             SRA       8         CLEAR EBDIC COOE                8C201970
05F9 0  1008             SLA       8                                         8C201980
05FA 0  0100             S7O    1  0         STORE IN OUTPU7 AREA            8C201990
                   *                                                          8C20200C
05F8 00 C4800A1C   KEBC2 LO     I  KMSG      CHECK 7ERMINATOR                8C202010
05F0 00 84000A2C         A      L  KONE                                      8C202020
05FF 00 4C180621         8SC    L  KCHK,+-   8R IF NO MORE MESS              8C202030
                                                                             8C202040
```


4K EOIT CONTROL

```
                   ***********************************************           8C202050
                   *                                                         8C202060
0601 0  6208             LDX    2  8                                         8C202070
0602 00 67000A50   KEBC3 LOX    L3 KTGLT     CONVER7-CHARS TO RTT            8C202080
0604 0  7101             MDX    1  1                                         8C202090
0605 00 C4800A1C   KEBC4 LO     I  KMSG      FETCH EBOIC CHARS               8C202100
0607 0  1A00             SRA    2  0                                         8C202110
0608 0  1008             SLA       8                                         8C202120
0609 0  1808             SRA       8                                         8C202130
060A 0  F300             EOR    3  0                                         8C202140
0608 0  D100             STO    1  0                                         8C202150
060C 0  1008             SLA       8                                         8C202160
0600 0  7301             MDX    3  1                                         8C202170
060E 00 4C200605         BSC    L  KEBC4,Z   BR IF NOT THE CHAR              8C202180
                   *                                                         8C202190
0610 0  7200             MDX    2  0         SKIP IF 2 CHARS CNVT            8C202200
0611 0  700D             MDX       KEBC6                                     8C202210
                   *                                                         8C202220
0612 00 C4000A2C         LD     L  KONE      SET 7ERMINATOR                  8C202230
0614 0  8100             A      1  0                                         8C202240
0615 0  0100             STO    1  0                                         8C202250
0616 00 65000A10         LDX    L1 KOUT      GO PRINT CHARS                  8C202260
0618 00 44000768         BSI    L  KTYP                                      8C202270
                   *                                                         8C202280
061A 00 65000A1C         LDX    L1 KOUT-1                                    8C202290
061C 00 74010A1C         MDX    L  KMSG,1    POINT TO NEXT WORD              8C202300
061E 0  700C             MDX       KEBC2                                     8C202310
                   *                                                         8C202320
061F 0  6200       KEBC6 LOX    2  0         CONVERT SECOND CHAR             8C202330
0620 0  70E1             MOX       KEBC3                                     8C202340
                   ***********************************************           8C202350
                   *                                                         8C202360
                   *                                                         8C202370
0621 00 65000A79   KCHK  LOX    L1 KCR                                       8C202380
0623 00 44000768         8SI    L  K7YP      DO CAR RET              SRC     8C202390
0625 00 C48005E7         LO     I  KEYE                                      8C202400
0627 00 4C280636         8SC    L  KFRM,+Z   8R IF KBO ENTRY                 8C202410
                   ***********************************************           8C202420
                   *                                                         8C202430
0629 00 65000000   KEY96 LOX    L1 /0000     RES7ORE STA7US                  8C202440
0628 00 66000000   KEY97 LDX    L2 /0000                                     8C202450
062D 00 67000000   KEY98 LOX    L3 /0000                                     8C202460
062F 00 CC000A22         LOO    L  KAQ                                       8C202470
0631 0  2000       KEY99 LDS       0                                         8C202480
                   *                                                         8C202490
0632 00 740105E7         MOX    L  KEYE,1                                    8C202500
0634 00 4C8005E7         8SC    I  KEYE      RETURN EXIT                     8C202510
                   ***********************************************           8C202520
                   ***********************************************           8C202530
                   *                                                         8C202540
                   *                                                         8C202550
0636 0  1090       KFRM  SLT       16        FETCH FORM NUMBER               8C202560
0637 00 C48005E7         LO     I  KEYE                                      8C202570
0639 0  1004             SLA       4                                         8C202580
063A 0  18CC             R7E       12                                        8C202590
0638 00 04000729         STO    L  KEYFM     SAVE FORM NO                    8C202600
0630 0  1804             SRA       4                                         8C202610
063E 0  1084             SLT       4                                         8C202620
063F 00 0400072A         STO    L  KEYNO     SAVE CHAR/WO COUNT              8C202630
                   *                                                         8C202640
                   *                                                         8C202650
0641 00 44800134   KEYOG 8SI    I  SKIN1     SET KEYIN TO FFFF       SRC     8C202660
                   *                                                         8C202670
0643 00 6F00010E         STX    L3 KIWC      RESET WD CT                     8C202680
                   *                                                         8C202690
0645 00 6700010F         LOX    L3 KEYIN     RESET REAO AREA                 8C202700
                   ***********************************************           8C202710
0647 00 6F000A2A   KEYO  STX    L3 KREO                                      8C202720
```

```
0649 00 44000745          BSI  L  KNBY        WAIT FOR NOT BUSY          8C202730
                          *                                               8C202740
064B 00 0C000A28  KEY1    XIO  L  KPCO        SET KEYBOARD PROCEED       8C202750
                          *                                               8C202760
064D 00 0C000A1A  KEY2    XIO  L  KSNS        SENSE STATUS               8C202770
064F 0  1001              SLA      1                                      8C202780
0650 00 4C280656          BSC  L  KEY3,+Z     GO READ KEYBOARD           8C202790
                          *                                               8C202800
0652 0  1005              SLA      5                                      8C202810
0653 00 4C10064B          BSC  L  KEY1,-      BR IF NOT PROCEED          8C202820
0655 0  70F7              MDX      KEY2                                   8C202830
                          *                                               8C202840
0656 00 0C000A2A  KEY3    XIO  L  KRED        READ KEYBOARD              8C202850
                          *                                               8C202860
0658 0  6108      KFMS    LDX    1 11         CHECK FOR DEC OR SPC       8C202870
0659 0  C300      KFMS1   LD     3 KREO-KRED  FETCH CHAR READ             8C202880
065A 00 F5000A33          EOR  L1 KECOO-1                                 8C202890
065C 00 4C180683          BSC  L  KOEC,+-     BR IF DEC OR SPACE         8C202900
                          *                                               8C202910
065E 0  71FF              MDX    1 -1                                     8C202920
065F 0  70F9              MDX      KFMS1                                  8C202930
                          *                                               8C202940
0660 00 C4000729          LD   L  KEYFM       CHECK FOR FORM             8C202950
0662 00 F4000A2C          EOR  L  KONE                                    8C202960
0664 00 4C180670          BSC  L  KFMO,+-     BRANCH IF FORM 1           8C202970
**********************************************************************  8C202980
0666 0  6106      KFM2    LDX    1 6          CHECK FOR HEX              8C202990
0667 0  C300      KFM21   LD     3 KREO-KREO  FETCH CHAR READ             8C203000
0668 00 F5000A3E          EOR  L1 KECAD-1                                 8C203010
066A 00 4C1806B6          BSC  L  KHEX,+-     BR IF ALPHA                8C203020
                          *                                               8C203030
066C 0  71FF              MDX    1 -1                                     8C203040
066D 0  70F9              MDX      KFM21                                  8C203050
066E 0  C300              LD     3 KREO-KRED  FETCH CHAR READ             8C203060
066F 00 F4000A31          EOR  L  KECPO                                   8C203070
0671 00 4C200670          BSC  L  KFMO,Z      BR IF NOT PERIOD           8C203080
0673 0  C3FC              LD     3 -4         A PLUS OR MINUS            8C203090
0674 0  6201              LDX    2 1                                      8C203100
0675 0  1240              SLCA   2 0                                      8C203110
0676 00 F4000B7F          EOR  L  K8000                                   8C203120
0678 00 4420072D          BSI  L  KERR,Z      BR IF NOT + OR -           8C203130
067A 00 C4000A65          LD   L  KTPLT                                   8C203140
067C 0  7022              MDX      KPNE                                   8C203150
                          *                                               8C203160
**********************************************************************  8C203170
067D 0  6108      KFMO    LDX    1 8          CHECK UC SP CHRS           8C203180
067E 0  C300      KFMO1   LD     3 0          GET CHR READ               8C203190
067F 00 F5000A2C          EOR  L1 KN-1        CK AGAINST TBL             8C203200
0681 00 4C1806A8          BSC  L  KMDX,+-     CHAR FOUND                 8C203210
0683 0  71FF              MDX    1 -1         DECR IX 1                  8C203220
0684 0  70F9              MDX      KFMO1      LOOP                       8C203230
                          *                                               8C203240
0685 0  6107              LDX    1 7          CK LC SP CHRS              8C203250
0686 0  C300      KFMO2   LD     3 0          GET CHR READ               8C203260
0687 00 F5000A47          EOR  L1 KAL-1        CK AGAINST TBL             8C203270
0689 00 4C1806B1          BSC  L  KMPX,+-     CHARACTER FOUND            8C203280
068B 0  71FF              MDX    1 -1         DECR IX 1                  8C203290
068C 0  70F9              MDX      KFMO2      LOOP                       8C203300
0680 0  C300              LO     3 0          GET CHR READ               8C203310
068E 00 F4000A21          EOR  L  KL                                      8C203320
0690 00 442006CC          BSI  L  KSPC,Z                                  8C203330
                          *                                               8C203340
0692 0  6201              LDX    2 1                                      8C203350
0693 0  C3FA              LO     3 -6                                     8C203360
0694 0  1002              SLA      2                                      8C203370
0695 0  1240              SLCA   2 0                                      8C203380
0696 00 F4000B7F          EOR  L  K8000                                   8C203390
0698 00 4420072D          BSI  L  KERR,Z      BR IF NOT 1 OR ZERO        8C203400
```



```
                          *                                               8C203410
069A 0  C3FA              LO     3 -6                                     8C203420
069B 0  1802              SRA      2                                      8C203430
069C 0  D3FA              STO    3 -6                                     8C203440
0690 00 C4000A55          LD   L  KLRT                                    8C203450
069F 00 EC000A2C  KPNE    OR   L  KONE                                    8C203460
06A1 00 65000A1D          LDX  L1 KOUT                                    8C203470
06A3 0  D100              STO    1 0                                      8C203480
06A4 00 44000768          BSI  L  KTYP                                    8C203490
06A6 00 4C000647          BSC  L  KEYO        BRANCH                      8C203500
                          *                                               8C203510
06A8 0  C300      KMOX    LD     3 0          FETCH CHAR                 8C203520
06A9 00 F4000A32          EOR  L  KECPD+1                                 8C203530
06AB 00 4C200681          BSC  L  KMPX,7      BR IF NOT + SIGN           8C203540
06AD 0  C300              LD     3 0          MAKE + = /3000             8C203550
06AE 0  180C              SRA    12                                       8C203560
06AF 0  100C              SLA    12                                       8C203570
0680 0  D300              STO    3 0                                      8C203580
0681 0  7111      KMPX    MDX    1 KN-KECGO   ADJ IX 1                   8C203590
0682 0  7001              MDX      KOEC1                                  8C203600
                          *                                               8C203610
**********************************************************************  8C203620
                          *                                               8C203630
06B3 0  7118      KDEC    MDX    1 KECOD-KECGD     CORCT XR1              8C203640
                          *                                               8C203650
06B4 0  4003      KOEC1   BSI      KSTO        GO STORE + PRT      SRC    8C203660
                          *                                               8C203670
06B5 0  7091              MDX      KEYO        RETURN FOR NEXT            8C203680
                          *                                               8C203690
06B6 0  7123              MDX    1 KECAD-KECGO     GO PRINT A - F         8C203700
06B7 0  70FC              MDX      KOEC1                                  8C203710
**********************************************************************  8C203720
                          *                                               8C203730
                                                    STORE AND PRINT RTN    8C203740
06B8 0  0000      KSTO    OC       /0000                                  8C203750
06B9 0  C300              LD     3 0                                      8C203760
06BA 0  EBFF              OR     3 -1                                     8C203770
06BB 0  1804              SRA      4                                      8C203780
06BC 00 4C9806B8          BSC  I  KSTO,+-     BR IF SECOND SPACE         8C203790
                          *                                               8C203800
06BE 00 C5000A4F          LD   L1 KTGLT-1     FETCH TYPE CHAR            8C203810
06C0 00 EC000A2C          OR   L  KONE                                    8C203820
06C2 00 65000A1D          LDX  L1 KOUT                                    8C203830
06C4 0  D100              STO    1 0                                      8C203840
06C5 00 44000768          BSI  L  KTYP        TYPE CHARACTER             8C203850
                          *                                               8C203860
                                                    UPOATE KEYBOARD BUF    8C203870
06C7 00 740101DE          MDX  L  KIWC,1                                  8C203880
06C9 0  7301              MDX    3 1                                      8C203890
                          *                                               8C203900
06CA 00 4C8006B8          BSC  I  KSTO        RETURN TO USER             8C203910
**********************************************************************  8C203920
                          *                                               8C203930
06CC 0  0000      KSPC    OC       /0000      SPECIAL CHAR CHECK         8C203940
                          *                                               8C203950
06CD 0  C300              LD     3 0          FETCH KEY CHARACTER        8C203960
06CE 00 F4000A4F          EOR  L  KCMA                                    8C203970
0600 00 4C2006E8          BSC  L  KSPC5,Z     BR IF NOT A  COMMA         8C203980
                          *                                               8C203990
06D2 00 C40001DE          LD   L  K1WC                                    8C204000
0604 00 940007B9          S    L  K0002                                   8C204010
06D6 00 4428072D          BSI  L  KERR,+Z     BR IF COMMA TOO SOON       8C204020
                          *                                               8C20403D
0608 0  C3FF              LO     3 -1         FETCH LAST ENTRY           8C204040
06D9 0  1804              SRA      4                                      8C204050
060A 00 4C1806DF          BSC  L  KSPC2,+-    BR IF SPACE LAST           8C204060
06DC 00 740101DE          MDX  L  KIWC,+1                                 8C204070
                                                                          8C204080
```

```
060E 0  7301                MDX   3 +1
060F 00 C4000A2C  KSPC2 LO    L  KOME
06E1 0  D3FF                STO   3 -1          SET FIELD PROTECT MK
*
06E2 00 65000700            LOX   L1 KCOMA
06E4 00 44000768            BSI   L  KTYP       GO PRINT + OR-
*
06E6 00 64000647            LOX   L  KEYO       RETURN FOR MORE CHR
*****************************************************
06E8 0  C300      KSPC5 LO    3 0               FETCH KEY CHARACTER
06E9 00 F4000A46            EOR   L  KERSE
06EB 00 4C200703            BSC   L  KSPC9,Z    BR IF NOT ERASE CHAR
*
06E0 00 C40001DE            LO    L  K1WC
06EF 00 4C080647            BSC   L  KEYO,+     BR IF WORD COUNT ZERO
*
06F1 0  C3FF                LD    3 -1          CHECK PROTECT BIT
06F2 00 4C040647            BSC   L  KEYO,E     BR IF LAST WORD PROTD
06F4 0  1801                SRA   1
06F5 00 4C0406FB            BSC   L  KSPC6,E    DO BKSP OVER PERIOD
06F7 0  73FF                MDX   3 -1          DECREASE WORD COUNT
06F8 00 74FF01DE            MDX   L  K1WC,-1
06FA 0  1000                NOP
06F8 00 65000702  KSPC6 LDX   L1 KBKSP
06FD 0  406A                BSI      KTYP       DO A BACKSPACE        SRC
*
06FE 00 4C000647            BSC   L  KEYO       RETURN
*****************************************************
0700 0  8000      KCOMA DC      /8000           COMMA RESPONSE
0701 0  8101            OC      /8101
0702 0  1101      K8KSP OC      /1101
*
0703 0  C300      KSPC9 LO    3 0               FETCH KEY CHAR
0704 00 F4000A45            EOR   L  KRENT
0706 00 441B0720            BSI   L  KERR,+-    BR IF ERASE FIELD
*
0708 0  C300                LO    3 KRED-KREO   FETCH CHAR READ
0709 00 F4000A47            EOR   L  KENDK
0708 00 4C200647            BSC   L  KEYO,Z     BR IF NOT EOF KEY
*
070D 00 C400010E            LD    L  K1WC       FETCH WORD COUNT
070F 0  901A                S        KEYNO
0710 00 44280720            BSI   L  KERR,+Z    TOO FEW ENTRIES
0712 00 6580010E            LOX   I1 K1WC       CLEAR FIELD PROT BIT
0714 00 C50001DE  KSPCA LD    L1 K1WC
0716 0  1804                SRA   4
0717 0  1004                SLA   4
0718 00 0500010E            STO   L1 K1WC
071A 0  71FF                MDX   1 -1
0718 0  70F8                MDX      KSPCA
*
*
071C 0  C3FF                LO    3 -1          REMOVE SP BEFORE
*                                                 TERMINATE
0710 0  1804                SRA   4
071E 00 4C200725            BSC   L  KSPCE,Z    BR IF NO SPACE THERE
0720 0  73FF                MDX   3 -1          DECREMENT WORD COUNT
0721 00 74FF010E            MDX   L  K1WC,-1
0723 0  7001                MDX      KSPCE
0724 0  4008                BSI      KERR
0725 0  C01E      KSPCE LD      KNEG            SET TERMINATION
0726 0  0300                STO   3 0
0727 00 44000AA0            BSI   L  LDDIT      LET LLOYO DO IT
0729 0  0000      KEYFM OC      /0000           FORM NUMBER
072A 0  0000      KEYND OC      /0000           CHARS / WORD
0728 00 4C000629  EXIT  BSC   L  KEY96
*****************************************************
```

```
8C204090
8C204100
8C204110
8C204120
8C204130
8C204140
8C204150
8C204160
8C204170
8C204180
8C204190
8C204200
8C204210
8C204220
8C204230
8C204240
8C204250
8C204260
8C204270
8C204280
8C204290
8C204300
8C204310
8C204320
8C204330
8C204340
8C204350
8C204360
8C204370
8C204380
8C204390
8C204400
8C204410
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8C204470
8C204480
8C204490
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8C204580
8C204590
8C204600
8C204610
8C204620
8C204630
8C204640
8C204650
8C204660
8C204670
8C204680
8C204690
8C204700
8C204710
8C204720
8C204730
8C204740
8C204750
8C204760
```



```
*
*
0720 0  0000      KERR  DC      /0000
072E C0 65000A7A        LDX   L1 KFELD
0730 0  4037            BSI      KTYP       PRINT FIELD CANCELLD
*                                             TYPE                  SRC
0731 0  7301            MDX   3 1
0732 00 7401010F        MDX   L  K1WC,1
0734 0  61FF            LOX   1 -1
0735 0  C3FF      KERR1 LO    3 -1            ERASE TO FIELD MARK
0736 00 4C040647        BSC   L  KEYO,E       BR IF FIELD MARK
*
0738 0  C008            LD       KNEG
0739 0  0300            STO   3 0
073A 0  73FF            MDX   3 -1            DECREMENT WORD COUNT
073B 00 74FF01DE        MDX   L  K1WC,-1
073D 0  70F7            MDX      KERR1
*
073E 00 C400010E        LD    L  K1WC
0740 00 4C100647        BSC   L  KEYO,-
0742 00 4C000641        BSC   L  KEYOG
0744 0  FFFF      KNEG  OC      -1              CONSTANT MINUS ONE
*****************************************************
*
*
*                                                                     *
                                              TYPR NOT BUSY RTN
0745 0  0000      KNBY  OC      /0000
0746 0  6A18            STX   2 KNBY5+1
0747 00 6600000A        LOX   L2 10           SET TIME COUNTER
0749 00 6E000767        STX   L2 KTIME
074B 00 66007FFF  KN8Y0 LOX   L2 /7FFF
0740 00 0C000A1A  KN8Y1 XIO   L  KSNS         CHECK BUSY
074F 0  1004            SLA   4
0750 00 4C100761        BSC   L  KNBY5,-      BR IF NOT BUSY
0752 0  72FF            MDX   2 -1
0753 0  70F9            MDX      KN8Y1        CHECK AGAIN
0754 00 74FF0767        MDX   L  KTIME,-1     DECREMENT TIMER
0756 0  70F4            MDX      KNBY0
*
0757 00 6600075D        LOX   L2 KN8Y4        TYPR HUNG UP BUSY
0759 00 6E000003        STX   L2 3
075B 0  3002      WAIT2 WAIT    2             1816 HUNG UP BUSY
075C 0  70EA            MDX      KNBY+2
*
075D 00 6600012C  KN8Y4 LDX   L2 300          RESTORE RESTART
075F 00 6E000003        STX   L2 3
*
0761 00 66000000  KN8Y5 LDX   L2 /0000        EXIT
0763 00 0C000A24        XIO   L  KROY         RESET
0765 00 4C800745        BSC   I  KNBY
0767 0  0000      KTIME OC      /0000           TIME COUNTER
*****************************************************
*
*
*
*                                                                     *
*                                             PRINTER OUTPUT RTN
*                                             XR1 = ADRS OF MESS
*
0768 0  0000      KTYP  DC      /0000
0769 00 60000A26  KTYP1 STX   L1 KPRT         SAVE PRINTING ADDR
*
076B 0  4009            BSI      KNBY         WAIT OFR NOT BUSY
*
076C 00 0C000A24  KTYP5 XIO   L  KROY         CHECK READY
076E 0  1005            SLA   5
076F 00 4C100773        BSC   L  KTYP6,-      BR IF READY
0771 0  3001      WAIT1 WAIT    1             PRINTER OUT OF FORMS
*
```

```
8C204770
8C204780
8C204790
8C204800
8C204810
8C204820
8C204830
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8C204860
8C204870
8C204880
8C204890
8C204900
8C204910
8C204920
8C204930
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8C204950
8C204960
8C204970
8C204980
8C204990
8C205000
8C205010
8C205020
8C205030
8C205040
8C205050
8C205060
8C205070
8C205080
8C205090
8C205100
8C205110
8C205120
8C205130
8C205140
8C205150
8C205160
8C205170
8C205180
8C205190
8C205200
8C205210
8C205220
8C205230
8C205240
8C205250
8C205260
8C205270
8C205280
8C205290
8C205300
8C205310
8C205320
8C205330
8C205340
8C205350
8C205360
8C205370
8C205380
8C205390
8C205400
8C205410
8C205420
8C205430
8C205440
```

```
0772 0  70F9            MDX     KTYPS                                   8C205450
                        *                                               8C205460
0773 00 0C000A26    KTYP6 XIO   L  KPRT        OUTPUT ONE CHAR         8C205470
0775 0  C100              LD    1  0                                    8C205480
0776 00 4C840768          BSC   I  KTYP,E      EXIT IF MSG PRIM        8C205490
                        *                                               8C205500
0778 0  7101              MDX   1  1                                    8C205510
0779 0  70EF              MDX     KTYP1                                 8C205520
077A 0  0000        CKYNE DC      0                                     SE 8C205530
077B 00 C40001DF          LD    L  KEYIN      GET ENTRY               8C205540
0770 0  F018              EOR     YES         IS IT Y LC              8C205550
077E 00 4C180794          BSC   L  CKYNO,+-   YES                     8C205560
0780 00 C40001DF          LD    L  KEYIN      GET ENTRY               8C205570
0782 0  F014              EOR     YES1        IS IT Y UC              8C205580
0783 00 4C180794          BSC   L  CKYNO,+-   YES                     8C205590
0785 00 C40001DF          LD    L  KEYIN      GET ENTRY               8C205600
0787 0  F010              EOR     NO          IS IT N LC              8C205610
0788 00 4C180792          BSC   L  CKYN1,+-   YES                     8C205620
078A 00 C40001DF          LD    L  KEYIN      GET ENTRY               8C205630
078C 0  F00C              EOR     NO1         IS IT N UC              8C205640
0780 00 4C180792          BSC   L  CKYN1,+-   YES                     8C205650
                        *                                               8C205660
078F 00 44800132          BSI   I  SER        NOT Y OR N              SRC 8C205670
0791 0  0888              OC      PCKBE                                 8C205680
                        *                                               8C205690
0792 00 7401077A    CKYN1 MDX   L  CKYNE,1    INCR RETURN             8C205700
0794 00 4C80077A    CKYNO BSC   I  CKYNE      EXIT                    SX 8C205710
                        *                                               8C205720
0796 0  2020        YES   OC      /2020       LOWER CASE Y            8C205730
0797 0  8060        YES1  OC      /8060       UPPER CASE Y            8C205740
0798 0  4100        NO    DC      /4100       LOWER CASE N            8C205750
0799 0  8120        NO1   DC      /8120       UPPER CASE N            8C205760
                        *                                               8C205770
                        *                                               8C205780
                        *  SET UP RETURN ON ERROR                       8C205790
079A 0  0000        SSUEE OC      /0000                                 8C205800
079B 0  C0FE              LO      SSUEE                                 8C205810
079C 0  901C              S       K0002                                 8C205820
0790 00 04000441          STO   L  SRTRY                                8C205830
079F 00 4C80079A          BSC   I  SSUEE                                8C205840
079A                SSUER EQU     SSUEE                                 8C205850
                        *                   CHECK IF INTERRUPT LEVEL    8C205860
                        *                   IS TO GREAT                 8C205870
07A1 0  0000        SILE  OC                                            8C205880
07A2 00 C400013E          LO    L  BINRY                                8C205890
07A4 0  1008              SLA     8                                     8C205900
07A5 0  B008              CMP     S1700                                 8C205910
07A6 0  7002              MDX     SILER     GREATER.ERROR               8C205920
07A7 0  7004              MDX     SIL1                                  8C205930
07A8 0  7003              MDX     SIL1                                  8C205940
                        *                                               8C205950
07A9 00 44800132    SILER BSI   I  SER                                  8C205960
07AB 0  08A0              OC      SE002                                 8C205970
                        *                                               8C205980
07AC 00 4C8007A1    SIL1  BSC   I  SILE                                 8C205990
                        *                                               8C206000
07AE 0  1700        S1700 OC      /1700                                 8C206010
                        *                                               8C206020
                        *                   CHECK IF ILSW IS VALID      8C206030
                        *                                               8C206040
07AF 0  0000        SILSE OC      /0000                                 8C206050
07B0 00 C400013E          LO    L  BINRY                                8C206060
07B2 0  1004              SLA     4                                     8C206070
07B3 0  B004              CMP     S00F0                                 8C206080
07B4 0  70F4              MDX     SILER       ERROR                     8C206090
07B5 0  1000              NOP     0                                     8C206100
                        *                                               8C206110
                        *                                               8C206120
```



```
0786 00 4C8007AF    SIA   BSC   I  SILSE                                 8C206130
                        *                                               8C206140
0788 0  00F0        S00F0 DC      /00F0                                 8C206150
0789 0  0002        K0002 DC      2                                     8C206160
                        *                                               8C206170
                        *                   CHECK CHANNEL VALUE         8C206180
                        *                                               8C206190
078A 0  0000        SCHE  DC      /0000                                 8C206200
078B 00 C400013E          LO    L  BINRY                                8C206210
078D 0  B00C              CMP     S0008                                 8C206220
078E 0  7002              MDX     SCHER                                 8C206230
078F 0  7005              MDX     SCH1                                  8C206240
07C0 0  7004              MDX     SCH1                                  8C206250
                        *                                               8C206260
07C1 0  F007        SCHER EOR     S000F                                 8C206270
07C2 00 4C1807C5          BSC   L  SCH1,+-                              8C206280
07C4 0  70E4              MDX     SILER       ERROR                     8C206290
                        *                                               8C206300
07C5 00 C400013E    SCH1  LD    L  BINRY                                8C206310
07C7 00 4C8007BA          BSC   I  SCHE                                 8C206320
07C9 0  000F        S000F OC      /000F                                 8C206330
                        *                                               8C206340
07CA 0  0008        S0008 DC      /0008                                 8C206350
07C8 0  0000        SERE  OC      /0000                                 8C206360
07CC 00 C48007CB          LD    I  SERE       FETCH ERROR ADDRESS       8C206370
07CE 0  0002              STO     SER1                                  8C206380
                        *                                               8C206390
07CF 00 4480012C          BSI   I  KEY                                  8C206400
07D1 0  0000        SER1  DC      /0000       ADDRESS                   8C206410
07D2 0  0000              DC      /0000       ID                        8C206420
                        *                                               8C206430
0703 00 4C800441          BSC   I  SRTRY                                8C206440
                        *                                               8C206450
                        *                   SET UP ROUTINE              8C206460
                        *                         X2= CARD NUMBER       8C206470
                        *                                               8C206480
0705 0  0000        SECSE OC      0                                     SE 8C206490
0706 00 C48007D5          LO    I  SECSE      GET MSG AORS              8C206500
0708 0  D024              STO     SIWB        SAVE                      8C206510
0709 0  6A24        SE1   STX   2  SECB       SET CD NO                 8C206520
070A 0  6924              STX   1  CPID       SET PIO                   8C206530
070B 0  6B24              STX   3  NOEN       SET NO OF ENTRIES         8C206540
070C 0  C024              LD      STBF1       GET EDIT IMAGE AORS       8C206550
0700 00 84000440          A     L  STBF                                 8C206560
070F 0  0003              STO     SE2+1       SET                       8C206570
07E0 00 658007FD          LDX   I1 SIWB       IX 1 = MSG AORS           8C206580
07E2 00 67000000    SE2   LDX   L3 0          IX 3 = STARTING AORS      8C206590
07E4 00 66800800          LDX   I2 NOEN       IX 2 = NO ENTRIES         8C206600
07E6 0  C018              LO      CPID        GET PIO                   8C206610
07E7 0  D300              STO   3  0          SET                       8C206620
07E8 0  C015              LD      SECB        GET CD NO                 8C206630
07E9 0  0301              STO   3  1          SET                       8C206640
07EA 0  C015              LD      NOEN        GET NO ENTRIES            8C206650
07EB 0  0302              STO   3  2          SET                       8C206660
07EC 0  7303              MDX   3  3          INCR IX 3                 8C206670
07E0 0  C100        SE3   LO    1  0          GET AN ENTRY              8C206680
07EE 0  D300              STO   3  0          SET                       8C206690
07EF 0  7101              MDX   1  1          INCR MSG ADRS             8C206700
07F0 0  7301              MDX   3  1          INCR BFR AORS             8C206710
07F1 0  72FF              MDX   2  -1         DECR NO ENTRIES           8C206720
07F2 0  70FA              MDX     SE3         LOOP                      8C206730
07F3 00 C4000440          LO    L  STBF                                 8C206740
07F5 0  800C              A       K0003       ADD 3                     8C206750
07F6 0  8009              A       NOEN        ADD NO ENTRIES            8C206760
07F7 00 04000440          STO   L  STBF                                 8C206770
07F9 00 74010705          MDX   L  SECSE,1    INCR RETURN               8C206780
07F8 00 4C8007D5          BSC   I  SECSE      EXIT                      SX 8C206790
                        *                                               8C206800
```

```
07FD 0  0000        SIWB  DC        0           MSG AORS                 8C206810
07FE 0  0000        SECB  OC        0           CARO NO                  8C206820
07FF 0  0000        CP10  DC        0           PID                      8C206830
0800 0  0000        NOEN  DC        0           NO ENTRIES               8C206840
0801 0  0442        STRFI DC        SEI8        CO BFR ADRS              8C206850
0802 0  0003        K0003 DC        3           CONSTANT 3               8C206860
                    ******************************************           8C206870
0803 0  0000        KIN1  OC        0                              SE    8C206880
0804 00 67000258          LDX   L3  600         SET IXING                8C206890
0806 00 C4000430          LD    L   TERM        GET FFFF                 8C206900
0808 00 070001DE    SKINA STO   L3  KIWC        SET KEYIN AREA           8C206910
080A 0  73FF              MOX    3  -1          DECR IX 3                8C206920
0808 0  70FC              MDX       SKINA       LODP                     8C206930
080C 00 4C800803          BSC   I   KIN1        EXIT               SX    8C206940
                    ******************************************           8C206950
                    *                                                    8C206960
080E 0  0000        KINO  OC        0                              SE    8C206970
080F 00 67000258          LOX   L3  600         SET IXING                8C206980
0811 0  1010              SLA       16          CLEAR ACCUM              8C206990
0812 00 D700?1DE    SKINB STO   L3  KIWC        CLEAR KEYIN AREA         8C207000
0814 0  73FF              MOX    3  -1          DECR IX 3                8C207010
0815 0  70FC              MDX       SKIN8       LOOP                     8C207020
0816 00 4C80080E          BSC   I   KINO        EXIT               SX    8C207030
                    *               OEC KEYBOARD TO BINARY RT            8C207040
                    *                                                    8C207050
0818 0  0000        OKYB  DC        0                                    8C207060
0819 0  0862              STD       PHKX1       SAVE A + Q               8C207070
081A 0  COFO              LO        OKYB                                 8C207080
0818 0  D005              STO       HKYB                                 8C207090
081C 00 04000885          STO   L   PHOSW       SET HEX-DEC SW = OEC     8C207100
081E 00 C40008CD          LD    L   POKX1       CONSTANT IO              8C207110
0820 0  7005              MOX       PHKYO       ENTER COMMON SECTION     8C207120
                    *                                                    8C207130
                    *                                                    8C207140
                    *                                                    8C207150
                    *               HEX KEYBOARO TO BINARY RT            8C207160
0821 0  0000        HKYB  DC        0                                    8C207170
0822 0  0859              STD       PHKX1       SAVE A + Q               8C207180
0823 0  C05F              LO        PHKX7       CONSTANT ZERO            8C207190
0824 0  0060              STO       PHOSW       SET HEX-OEC SW = HEX     8C207200
0825 0  C05E              LD        PHKX8                                8C207210
0826 0  D01F        PHKYD STO       PHKYC       SET CONV CK              8C207220
0827 0  284F              STS       PHKYS       SAVE STATUS              8C207230
0828 0  6949              STX    1  PHKY6+1     SAVE X1                  8C207240
0829 0  6A4A              STX    2  PHKY7+1     SAVE X2                  8C207250
082A 0  6848              STX    3  PHKY8+1     SAVE X3                  8C207260
0828 00 67800821          LOX   I3  HKYB                                 8C207270
0820 00 C7000000          LO    L3  0                                    8C207280
082F 0  004E              STO       PHKX2       SAVE CHAR/WORO           8C207290
0830 00 C7800001          LD    I3  1           GET AOOR OF DISP         8C207300
0832 0  804C              A         PHKX3       COMPUTE START AOOR       8C207310
0833 0  004C              STO       PHKX4                                8C207320
                    *                                                    8C207330
                    *               INITIALIZE 8INRY BUFFER              8C207340
                    *                                                    8C207350
0834 0  1810              SRA       16                                   8C207360
0835 00 0400013D          STO   L   8WC         RESET WORO COUNT         8C207370
                    *                                                    8C207380
                    *               CONVERT NUMBER TO HEX                8C207390
                    *               * ANO STORE IN 8INARY 8UF            8C207400
                    *                                                    8C207410
0837 00 6680013D    PHKY5 LDX   I2  8WC         SET X2 TO NEXT           8C207420
0839 00 76000130          MOX   L2  8INRY-1     * AVAILABLE SPACE -1     8C207430
0838 0  6A0C              STX    2  PHKY1+1                              8C207440
083C 0  6A16              STX    2  PHKY3+1                              8C207450
0830 00 6580087E          LDX   I1  PHKX2       SET X1 TO STARTING       8C207460
083F 00 75800880          MOX   I1  PHKX4       * AOOR + NUM CHAR/WO     8C207470
0841 00 6780087E          LOX   I3  PHKX2       SET X3 TO CHAR/WO        8C207480
```



```
0843 0  C100        PHKY2 LD     1  0           GET NUMBER               8C207490
0844 00 440008D6          BSI   L   PCKB        CONVERT TO BINARY        8C207500
0846 0  0010        PHKYC DC        16          LIM CK = 16 OR 10        8C207510
0847 00 D7000000    PHKY1 STO   L3  0           PLACE IN BINRY BUFF      8C207520
0849 0  71FF              MDX    1  -1                                   8C207530
084A 0  73FF              MDX    3  -1          SKIP WHEN DONE           8C207540
0848 0  70F7              MDX       PHKY2                                8C207550
084C 00 74000885          MDX   L   PHDSW,0     CK HEX-DEC SW            8C207560
084E 0  7037              MOX       PDKY1       BRANCH TO DEC RT         8C207570
                    *                                                    8C207580
                    *               PACK BINARY                          8C207590
                    *                                                    8C207600
084F 00 6780087E          LDX   I3  PHKX2       SET X3 TO CHAR/WO        8C207610
0851 0  10A0              SLT       32                                   8C207620
0852 00 C7000000    PHKY3 LO    L3  0                                    8C207630
0854 0  1884              SRT       4                                    8C207640
0855 0  73FF              MOX    3  -1                                   8C207650
0856 0  70F8              MDX       PHKY3                                8C207660
0857 0  63FC              LDX    3  -4          RIGHT JUSTIFY            8C207670
0858 00 7780087E          MOX   I3  PHKX2                                8C207680
085A 0  1884        PHKY4 SRT       4                                    8C207690
0858 0  7300              MOX    3  0                                    8C207700
085C 0  7001              MOX       PHKY9                                8C207710
0850 0  7002              MOX       PHKY9+2                              8C207720
085E 0  7301        PHKY9 MDX    3  1                                    8C207730
085F 0  70FA              MOX       PHKY4                                8C207740
0860 0  18D0              RTE       16                                   8C207750
0861 00 06000001    PHKYF STO   L2  1           PLACE IN BINRY BUFF      8C207760
0863 00 74010130          MOX   L   8WC,1       BUMP WORD COUNT          8C207770
                    *                                                    8C207780
                    *               BUMP TO NEXT KEYIN FIELO             8C207790
                    *                                                    8C207800
0865 0  C018        PHKYH LD        PHKX2       GET CHAR/WD              8C207810
0866 0  801A              A         PHKX5       AOD ONE FOR SPACE        8C207820
0867 0  8018              A         PHKX4                                8C207830
0868 0  D017              STO       PHKX4                                8C207840
0869 00 67800880          LOX   I3  PHKX4                                8C207850
0868 0  C300              LO     3  0                                    8C207860
086C 0  F015              EOR       PHKX6       CK FOR TERMINATOR        8C207870
086D 0  4820              BSC       Z           SKIP IF FOUNO            8C207880
086E 0  70C8              MOX       PHKY5       GET NEXT NUMBER          8C207890
                    *                                                    8C207900
                    *               EXIT FROM RT                         8C207910
                    *                                                    8C207920
086F 00 74020821          MOX   L   HKYB,2                               8C207930
0871 00 65000000    PHKY6 LOX   L1  0           RESTORE REGS             8C207940
0873 00 66000000    PHKY7 LOX   L2  0                                    8C207950
0875 00 67000000    PHKY8 LOX   L3  0                                    8C207960
0877 0  2000        PHKYS LDS       0                                    8C207970
0878 0  C803              LOO       PHKX1                                8C207980
0879 00 4C800821          BSC   I   HKYB        EXIT FROM SUBRT          8C207990
                    *                                                    8C208000
                    *                                                    8C208010
087C    0000              BSS   E   0                                    8C208020
087C    0002        PHKX1 BSS       2           SAVE A + Q               8C208030
087E 0  0000        PHKX2 OC        0           CHAR PER WORD            8C208040
087F 0  01DE        PHKX3 OC        KEYIN-1                              8C208050
0880 0  0000        PHKX4 OC        0           STARTING AODR            8C208060
0881 0  0001        PHKX5 OC        1           CONSTANT 1               8C208070
0882 0  FFFF        PHKX6 DC        /FFFF       CONSTANT FFFF            8C208080
0883 0  0000        PHKX7 DC        0           CONSTANT 0               8C208090
0884 0  0010        PHKX8 OC        16          CONSTANT 16              8C208100
0885 0  0000        PHDSW OC        0           HEX-OEC SWITCH           8C208110
                    *                                                    8C208120
                    *               CONV NUM TO DEC ANO STORE            8C208130
                    *               * IN BINARY BUF                      8C208140
                    *                                                    8C208150
0886 0  10A0        POKY1 SLT       32                                   8C208160
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4K EDIT CONTROL

```
0887 0  D840             STD      POKWA      ZERO OUT WORK AREA        8C208170
                   *                                                    8C208180
                   *                   CK FOR 9 CH/WD                   8C208190
                   *                                                    8C208200
0888 0  COF5             LO       PHKX2      GET CH/WD                 8C208210
0889 00 84000904         CMP   L  PCKX1      COMPARE TO 9              8C208220
088B 0  7039             MDX      PDKYE      ERROR TOO GREAT           8C208230
088C 0  7001             MDX      *+1                                  8C208240
088D 0  90F3             S        PHKX5      SUB ONE                   8C208250
088E 0  0001             STO      POKY2+1                              8C208260
088F 00 67000000   PDKY2 LOX   L3 0          LOX MODIFIED CH/WD        8C208270
0891 00 66800848         LOX   12 PHKY1+1                              8C208280
0893 0D 7680087E         MOX   12 PHKX2      SET UP 1ST POWER          8C208290
0895 0  6100             LOX    1 0                                    8C208300
0896 0  C200       PDKY3 LO     2 0          GET BIN NUMBER            8C208310
0897 00 A50008CC         M     L1 POKX2      MULT BY POWER             8C208320
0899 0  71FC             MDX    1 -4         CK FOR CH/WD GRT 4        8C208330
089A 0  7009             MOX      POKYH      CH/WO GRT 4               8C208340
089B 0  7104       POKYJ MDX    1 4                                    8C208350
089C 0  1000             SLA      0                                    8C208360
089D 0  882A             AO       POKWA                                8C208370
089E 0  0829             STO      POKWA                                8C208380
089F 0  7101             MDX    1 1                                    8C208390
08A0 0  72FF             MDX    2 -1                                   8C208400
08A1 0  73FF             MOX    3 -1                                   8C208410
08A2 0  70F3             MOX      PDKY3                                8C208420
08A3 0  7003             MDX      POKY6                                8C208430
08A4 0  1800       PDKYH RTE      16         CH/WD GRT 4               8C208440
08A5 0  A02A             M        PDKX1+3    MULTIPY BY 10,000         8C208450
08A6 0  70F4             MDX      POKYJ                                8C208460
                   *                   CK FOR SIGNED NUMBER             8C208470
                   *                                                    8C208480
08A7 0  C006       POKY6 LD       PHKX2                                8C208490
08A8 00 B4000904         CMP   L  PCKX1      CONS 9                    8C208500
08AA 0  701A             MOX      POKYE      ERROR TOO GREAT           8C208510
08AB 0  7001             MDX      *+1                                  8C208520
08AC 0  7009             MDX      POKY7      CK SIGN                   8C208530
                   *                   CK FOR CH/WD GREATER             8C208540
                   *                   * THAN 5                         8C208550
08AD 0  C000             LO       PHKX2                                8C208560
08AE 0  8026             CMP      POKX3      CONS 5                    8C208570
08AF 0  700F             MOX      PDKY8                                8C208580
08B0 0  7001             MDX      *+1                                  8C208590
08B1 0  700F             MOX      POKYA      GO TO CK FOR /7FFF        8C208600
                   *                                                    8C208610
                   *                   SINGLE PRECISION NUMBER          8C208620
                   *                                                    8C208630
08B2 00 66800848   POKYF LDX   I2 PHKY1+1                              8C208640
08B4 0  C014             LO       POKWA+1    GET CONV NUMBER           8C208650
08B5 0  70AB             MOX      PHKYF                                8C208660
                   *                   CORRECT SIGN                     8C208670
08B6 0  C200       PDKY7 LO     2 0                                    8C208680
08B7 00 4C18088F         BSC   L  POKY8,+-   BRANCH IF POS NUMB        8C208690
08B9 0  10A0             SLT      32         CHANGE SIGN               8C208700
08BA 0  9800             SD       POKWA                                8C208710
08BB 0  DA00       PDKY9 STO    2 0                                    8C208720
08BC 00 74020130         MOX   L  BWC,2                                8C208730
08BE 0  70A6             MDX      PHKYH                                8C208740
08BF 0  C808       PDKY8 LOO      POKWA      DOUBLE PREC POS NUMB      8C208750
08C0 0  70FA             MOX      PDKY9                                8C208760
                   *                   CK LESS THAN OR EQ /7FFF         8C208770
08C1 0  C806       PDKYA LOO      POKWA                                8C208780
08C2 0  9807             SD       PDKX4      CONS 000008000            8C208790
08C3 00 4C280882         BSC   L  POKYF,+Z   BRANCH TO SINGLE PREC     8C208800
08C5 00 44800132   PDKYE BSI   I  SER                                  8C208810
08C7 0  0888             OC       PCK8E                                8C208820
08C8    0000             BSS   E  0                                    8C208830
08C8    0002       PDKWA BSS      2          WORK AREA                 8C208840
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4K EDIT CONTROL

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08CA 0  0000       POKX4 DC       0          CONS /00008000            8C208850
08CB 0  8000             DC       /8000                                8C208860
08CC 0  0001       PDKX2 DC       1          CONV TABLE                8C208870
08CD 0  000A       PDKX1 DC       10                                   8C208880
08CE 0  0064             DC       100                                  8C208890
08CF 0  03E8             OC       1000                                 8C208900
08D0 0  2710             DC       10000                                8C208910
08D1 0  000A             DC       10                                   8C208920
08D2 0  0064             DC       100                                  8C208930
08D3 0  03E8             DC       1000                                 8C208940
08D4 0  2710             OC       10000                                8C208950
08D5 0  0005       POKX3 DC       5          CONS 5                    8C208960
                   *                                                    8C208970
                   *                                                    8C208980
                   *                                                    8C208990
                   *                                                    8C209000
                   *                                                    8C209010
                   *                                                    8C209020
                   *                   KEYBOARD TO BINARY RT            8C209030
08D6 0  0000       PCKB  OC       0                                    8C209040
08D7 0  6827             STX    3 PCKBX+1    SAVE X3                   8C209050
08D8 0  D029             STO      PCKBA      SAVE NUMBER               8C209060
08D9 00 C4800806         LO     I PCKB       GET LIMIT CK              8C209070
08DB 0  0001             STO      PCKB1+1                              8C209080
08DC 00 67000000   PCKB1 LOX   L3 0          SET X3 TO LIM CK          8C209090
08DE 00 C7000A34         LD    L3 KECOD      LK UP CODE                8C209100
08E0 0  F021             EOR      PCKBA                                8C209110
08E1 00 4C1808F8         BSC   L  PCKB3,+-   BRANCH IF FOUND           8C209120
08E3 0  73FF             MOX    3 -1         SKIP IF ILLEGAL           8C209130
08E4 0  70F9             MDX      PCKB1+2                              8C209140
08E5 00 C400087E         LO    L  PHKX2      CK FOR 9 CHAR FIELD       8C209150
08E7 0  901C             S        PCKX1                                8C209160
08E8 00 4C2008F5         BSC   L  PCKB4,Z    GO TO ERROR IF NOT 9      8C209170
08EA 0  C017             LD       PCKBA      CK FOR +                  8C209180
08EB 0  F019             EOR      PCKX2                                8C209190
08EC 00 4C1808FC         BSC   L  PCKBX-2,+-                           8C209200
08EE 0  C013             LO       PCKBA      CK FOR -                  8C209210
08EF 0  F016             EOR      PCKX3                                8C209220
08F0 00 4C2008F5         BSC   L  PCKB4,Z    GO TO ERROR, NO + -       8C209230
08F2 00 C4000894         LD    L  PCKX4                                8C209240
08F4 0  7007             MOX      PCKBX-2                              8C209250
08F5 00 44800132   PCKB4 BSI   I  SER        IMPROPER KEY CODE         8C209260
08F7 0  0888             DC       PCK8E      * I.E NOT 0-9 OR 0-F      8C209270
08F8 0  73FF       PCKB3 MDX    3 -1                                   8C209280
08F9 0  1000             SLA      0                                    8C209290
08FA 0  6808             STX    3 PCKBB                                8C209300
08FB 0  C007             LO       PCKBB      GET CONVERTED NUM         8C209310
08FC 00 74010806         MDX   L  PCKB,1                               8C209320
08FE 00 67000000   PCKBX LOX   L3 0          RESTORE X3                8C209330
0900 00 4C8008D6         BSC   I  PCKB                                 8C209340
                   *                                                    8C209350
0902 0  0000       PCKBA DC       0          ORIGINAL NUMBER           8C209360
0903 0  0000       PCKBB DC       0          CONVERTED NUMBER          8C209370
0904 0  0009       PCKX1 OC       9                                    8C209380
0905 0  8000       PCKX2 DC       /8000      +                         8C209390
0906 0  4000       PCKX3 OC       /4000      -                         8C209400
                   *                                                    8C209410
                   *                                                    8C209420
                   *                                                    8C209430
                   *                   PUNCH EDIT CARD OUTPUT ROUTINE   8C209440
                   *                                                    8C209450
0907 0  0000       PECOR OC       0                                    8C209460
0908 00 DC00098C         STO   L  PECX1      SAVE REGISTERS            8C209470
090A 0  285C             STS      PECOS                                8C209480
090B 0  1810             SRA      16                                   8C209490
090C 0  6955       PECYF STX    1 PECY1+1                              8C209500
090D 0  6A56             STX    2 PECY2+1                              8C209510
090E 0  6B57             STX    3 PECY3+1                              8C209520
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4K EDIT CONTROL

```
090F 00 4480012C        BSI  I  KEY       PRINT EDIT CARD LIST        8C209530
0911 0  089F            DC      PECXF     * MESSAGE                   8C209540
0912 0  0000            DC      0                                     8C209550
                     *                                                8C209560
                     *                                                8C209570
                     *                READ A CARD AND VERIFY          8C209580
                     *                * THAT IT IS BLANK              8C209590
                     *                                                8C209600
0913 00 66DD0442        LDX  L2 SE1B      SET X2 = ED IMAG BUF        8C209610
0915 00 650001E0        LDX  L1 KEY1N+1   X1 = OPT REG                8C209620
0917 DD 0C000B0E  PECY7 XIO  L  RDSW      READ DATA SWS               8C209630
0919 0D C40D0810        LD   L  DTSW      GET SWS                     8C209640
D918 00 4C280921        BSC  L  PT,+Z     BRANCH IF P T               8C209650
091D D  1D01            SLA     1                                     8C209660
091E 0D 4C280921        BSC  L  PT,+Z     BRANCH IF BOTH              8C209670
0920 0  7007            MDX     NTPT      NOT PAPER TAPE              8C209680
0921 00 44000AED  PT    BSI  L  PPT       PUNCH LEADER          SRC   8C209690
0923 D0 C4000810        LD   L  DTSW      GET SWS                     8C209700
0925 0  1001            SLA     1                                     8C209710
0926 0D 4C100093C       BSC  L  PECYE,-   BRANCH IF NOT BOTH          8C209720
0928 D  0868      NTPT  XIO     PECX5     SENSE DSW                   8C209730
0929 0D 4C04097E        BSC  L  PECY6,E   XFER IF NOT READY           8C209740
0928 D  0866            XIO     PECX4     READ A CARD                 8C209750
092C D  D867      PECY4 XIO     PECX5     SENSE DSW                   8C209760
092D D  1801            SRA     1         CK BUSY                     8C209770
092E 0D 4C04D92C        BSC  L  PECY4,E   XFER IF BUSY                8C209780
0930 0  180C            SRA     12                                    8C209790
0931 0D 4CD40984        BSC  L  PECYB,E   XFER IF ERROR ON            8C209800
0933 D  D862            XIO     PECX6     RESET OSW                   8C209810
                     *                                                8C209820
                     *                CK FOR BLANK CARD               8C209830
                     *                                                8C209840
0934 0  181D            SRA     16                                    8C209850
0935 0  6350            LDX  3  80                                    8C209860
D936 00 EF0001DF  PECYS DR   L3 KEY1N                                 8C209870
0938 0  73FF            MDX  3  -1                                    8C209880
0939 0  70FC            MDX     PECYS                                 8C209890
093A 00 4C200928        BSC  L  NTPT,Z                                8C209900
                     *                                                8C209910
                     *                BLANK OUT OUTPUT BUFF           8C209920
                     *                                                8C209930
093C 0  1810      PECYE SRA     16                                    8C209940
0930 0  6380            LDX  3  -80                                   8C209950
093E D0 D70D0230  PECYA STD  L3 KEY1N+81                              8C209960
0940 0  7301            MDX  3  1                                     8C209970
0941 0  70FC            MDX     PECYA                                 8C209980
                     *                                                8C209990
0942 00 67D0FF8D        LDX  L3 -80       SET X3 = COL CONTROL        8C210000
                     *                                                8C210010
                     *                SET E INTO OUTPUT AREA          8C210020
0944 0D C40DDA43        LD   L  P81X2                                 8C210030
D946 0  D10D            STO  1  0                                     8C210040
D947 D  7301            MDX  3  1                                     8C210050
                     *                                                8C210060
                     *                SET P10 INTO OUTPUT AREA        8C210070
                     *                                                8C210080
D948 0  C20D            LO   2  0                                     8C210090
D949 D  1008            SLA     8                                     8C210100
094A 0  4051            BSI     P81HX     CONV TO HEX AND       SRC   8C210110
                     *                    * STORE IN OUTPUT           8C210120
                     *                                                8C210130
                     *                CK FOR END OF ED CO OIR         8C210140
                     *                                                8C210150
0948 0  C201            LO   2  1                                     8C210160
094C 00 F4D0089E        EDR  L  PECXD                                 8C210170
094E DD 4C200968        BSC  L  PECYB,Z   BRANCH IF NOT END CO        8C210180
0950 00 C4D0089E        LD   L  PECXD     SET FFFF EDIT END           8C210190
0952 D  4049            BSI     P81HX     CONV AND STORE        SRC   8C210200
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4K EDIT CONTROL

```
0953 0  4061            BSI     PED       PUNCH CARD            SRC   8C210210
0954 00 440009E0        BSI  L  PPECD     PRINT THE EDIT CARD         8C210220
0956 00 C40D0810        LD   L  DTSW      GET SWS                     8C210230
0958 00 4C280961        BSC  L  PECY1,+Z  BRANCH IF NOT CARDS         8C210240
095A 0  D835            XIO     PECXC     STACKER SELECT              8C210250
0958 0  083C            XIO     PECX7     FEED A CARD                 8C210260
095C 0  0837      PECYC XIO     PECX5     SENSE DSW                   8C210270
095D 0  1801            SRA     1                                     8C210280
095E 00 4C04095C        BSC  L  PECYC,E                               8C210290
0960 0  D835            XIO     PECX6     RESET DSW                   8C210300
                     *                                                8C210310
0961 00 65D00000  PECY1 LDX  L1 0         RESTORE REGS                8C210320
0963 00 66000000  PECY2 LDX  L2 0                                     8C210330
0965 00 670D0000  PECY3 LDX  L3 D                                     8C210340
0967 0  20D0      PECDS LDS     0                                     8C210350
0968 0  C823            LDD     PECX1                                 8C210360
0969 00 4C8009D7        BSC  1  PECOR     EXIT FROM ROUTINE           8C210370
                     *                SET CARD NUMB IN OUTPUT         8C210380
0968 0  C2D1      PECYB LD   2  1                                     8C210390
096C 0  E821            DR      PECX3     ADD IN E0                   8C210400
096D 0  402E            BSI     P81HX     CONV AND STORE        SRC   8C210410
                     *                                                8C210420
                     *                SET NUMB ENTRIES PER CARD       8C210430
                     *                                                8C210440
096E 0  C202            LD   2  2                                     8C210450
096F 0  1888            SRT     8                                     8C210460
0970 0  1810            SRA     16                                    8C210470
0971 0  1088            SLT     8                                     8C210480
0972 0  D01C            STO     PECXE     SAVE                        8C210490
0973 0  4028            BSI     P81HX     CONV AND STORE        SRC   8C210500
                     *                MOVE DATA TO OUTPUT BUFF        8C210510
0974 0  C2D3      PECYD LO   2  3                                     8C210520
0975 0  4026            BSI     P81HX     CONV AND STORE        SRC   8C210530
0976 0  72D1            MDX  2  1         BUMP IMAG BUF ADDR          8C210540
0977 D0 74FF098F        MDX  L  PECXE,-1  DECREMENT ENTRIES/CD        8C210550
0979 0  70FA            MDX     PECYD                                 8C210560
097A 0  4D3A            BSI     PED       PUNCH A CARD          SRC   8C210570
0978 0  4064            BSI     PPECD     PRINT CARD            SRC   8C210580
097C 0  7203            MDX  2  3                                     8C210590
097D 0  70A5            MDX     PT+2      BRANCH                      8C210600
                     *                                                8C210610
097E 00 4480D12C  PECY6 BSI  1  KEY                                   8C210620
0980 0  0895            DC      PECX9                                 8C210630
0981 0  000D            DC      0                                     8C210640
0982 D  3003      WAIT3 WAIT    3         1442 NOT READY =RD1         8C210650
                     *                *PUSH START TO RETRY            8C210660
0983 0  7093            MDX     PECY7     BRANCH                      8C210670
                     *                                                8C21068D
0984 0D 4480012C  PECY8 BSI  1  KEY                                   8C210690
0986 0  0895            DC      PECX9                                 8C2107D0
0987 0  D000      $     DC      0         1442 READ ERROR             8C210710
0988 D  D80D            XIO     PECX6     RESET DSW                   8C210720
0989 D  3D04      WAIT4 WAIT    4         PUSH START TO REREAD        8C210730
098A 0  70AC            MDX     PECY7     BRANCH                      8C210740
                     *                                                8C210750
098C    000D            BSS  E  0                                     8C210760
098C    0002      PECX1 BSS     2         SAVE A + Q                  8C210770
098E 0  EDD0      PECX3 DC      /E000                                 8C210780
098F 0  D000      PECXE DC      0         ENTRIES PER CARD            8C21D790
0990 0  0D00      PECXC DC      0         STACKER SELECT IOCC         8C210800
0991 0  1480            DC      /1480                                 8C210810
0992 0  01E0      PECX4 DC      KEYIN+1   READ A CARD IOCC            8C210820
0993 D  1600            DC      /1600                                 8C210830
0994 0  0D00      PECX5 DC      0         SENSE 1442 DSW              8C21D840
0995 0  1700            DC      /1700                                 8C21085D
0996 D  D000      PECX6 DC      0         SENSE AND RESET DSW         8C210860
0997 0  1703            DC      /1703                                 8C210870
0998 0  000D      PECX7 DC      0         FEED A CARD IOCC            8C210880
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0999 0  1402          OC      /1402
099A 0  01E0  PECXB   DC      KEY1N+1     PUNCH A CARD IOCC                8C210890
099B 0  1500          OC      /1500                                        8C210900
                      *                                                    8C210910
                      *                                                    8C210920
                      *       BINARY TO HEX  CARD IMAGE RT                 8C210930
                      *                                                    8C210940
099C 0  0000  PB1HX   OC      0                                            8C210950
099D 0  18D0          RTE     16          PUT BIN WORD TO BE               8C210960
                      *                   * CONVERTED IN Q REG             8C210970
099E 0  6911          STX   1 PB1Y1+1     SAVE X1                          8C210980
099F 0  6A12          STX   2 PB1Y2+1     SAVE X2                          8C210990
09A0 0  6104          LDX   1 4           SET LOOP CONTROL                 8C211000
09A1 0  1810  PB1Y3   SRA     16          CONV CHAR TO HEX                 8C211010
09A2 0  1084          SLT     4                                            8C211020
09A3 0  0001          STO     *+1                                          8C211030
09A4 00 66000000      LDX   L2 0                                           8C211040
09A6 00 C6000135      LO    L2 KEC00+1    GET HEX EQUIV                    8C211050
09AB 00 07000230      STO   L3 KEY1N+81                                    8C211060
09AA 0  7301          MDX     3 1         BUMP TO NEXT OUTPUT              8C211070
09AB 0  1000          SLA     0           NOP                              8C211080
09AC 0  71FF          MDX     1 -1                                         8C211090
09AD 0  70F3          MDX     PB1Y3                                        8C211100
09AE 0  7301          MDX     3 1         PUT BLANK IN OUTPUT              8C211110
09AF 00 65000000  PB1Y1 LDX   L1 0        RESTORE X1                       8C211120
0981 00 66000000  PB1Y2 LDX   L2 0        RESTORE X2                       8C211130
09B3 00 4C80099C      BSC     I PB1HX                                      8C211140
                      *                                                    8C211150
                      *               PUNCH A CARD ROUTINE                 8C211160
0985 0  0000  PE0     OC      0                                      SE    8C211170
0986 00 C4000810      LD    L OTSW        GET SWS                          8C211180
0988 00 4C280811      BSC   L H805,+Z     BRANCH IF P T                    8C211190
098A 0  1001          SLA     1                                            8C211200
098B 00 4C280811      BSC   L H805,+Z     BRANCH IF BOTH                   8C211210
098D 00 C400022F  PEOEN LD    L KEYIN+80                                   8C211220
098F 0  E81F          OR      PEDX1       * AT END OF OUTPUT               8C211230
09C0 00 0400022F      STO   L KEYIN+80                                     8C211240
09C2 0  0801  PEOY4   XIO     PECX5       SENSE OSW                        8C211250
09C3 00 4C0409D1      BSC   L PEOYI,E     XFER IF NOT ROY                  8C211260
09C5 0  08CA          XIO     PECXC       STACKER SELECT                   8C211270
09C6 0  0803          XIO     PECX8       PUNCH CARD                       8C211280
09C7 0  08CC  PEOY2   XIO     PECX5       SENSE OSW                        8C211290
09C8 0  1801          SRA     1           CK BUSY                          8C211300
09C9 00 4C0409C7      BSC   L PEOY2,E     XFER IF BUSY                     8C211310
09CB 0  180C          SRA     12                                           8C211320
09CC 00 4C0409DB      BSC   L PEDY3,E     XFER IF ERROR ON                 8C211330
09CE 0  08C7          XIO     PECX6       RESET OSW                        8C211340
09CF 00 4C800985  PEOEX BSC   I PEO       EXIT                       SX    8C211350
                      *                                                    8C211360
0901 0  08C2  PEOY1   XIO     PECX5       SENSE OSW                        8C211370
0902 00 4480012C      BSI   I KEY                                          8C211380
0904 0  0895          OC      PECX9                                        8C211390
0905 0  0000          OC      0                                            8C211400
0906 0  3006  WAIT6   WAIT    6           1442 NOT ROY=PUNCH)              8C211410
0907 0  70EA          MDX     PEOY4                                        8C211420
                      *                                                    8C211430
09D8 0  08B0  PEOY3   XIO     PECX6       RESET OSW                        8C211440
0909 00 4480012C      BSI   I KEY                                          8C211450
090B 0  0895          OC      PECX9                                        8C211460
090C 0  0000          OC      0                                            8C211470
090D 0  3007  WAIT7   WAIT    7           1442 ERROR AFTER                 8C211480
                      *                   * PUNCHING                       8C211490
09DE 0  70E3          MDX     PEOY4                                        8C211500
                      *                                                    8C211510
090F 0  0008  PEDX1   OC      /0008       END OF PUNCH BIT                 8C211520
                      *                                                    8C211530
                      *                                                    8C211540
                      *                                                    8C211550
                                                                           8C211560
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                      *                                                    8C211570
                      *                                                    8C211580
                      *           CONVERT CCD TO EBDIC + KEY               8C211590
09E0 0  0000  PPECD   OC      /0000                                        8C211600
09E1 0  692B          STX   1 PPEY5+1     SAVE XRS + A + Q                 8C211610
09E2 0  6A2C          STX   2 PPEY6+1                                      8C211620
09E3 0  6820          STX   3 PPEY7+1                                      8C211630
09E4 0  D833          STO     PPEX3                                        8C211640
                      *                                                    8C211650
                      *                                                    8C211660
09E5 00 6500D1DF      LDX   L1 KEYIN      INITIALIZE ROUTINE               8C211670
09E7 00 6D0001DE      STX   L1 K1WC                                        8C211680
09E9 0  6380          LDX     3 -80                                        8C211690
09EA 0  6202          LDX     2 2                                          8C211700
09EB 0  61EF  PPEY4   LDX     1 -17         RESTORE KECOD POINTR           8C211710
09EC 00 C7000230  PPEY2 LD    L3 KEY1N+81   FETCH KEYBO CHAR               8C211720
09EE 00 F5000A45      EOR   L1 KEC00+17                                    8C211730
09F0 0  1804          SRA     4                                            8C211740
09F1 00 4C1B09F5      BSC   L PPEY1,+-      BR IF COMPARE                  8C211750
09F3 0  7101          MDX     1 1                                          8C211760
09F4 0  70F7          MDX     PPEY2         TRY NEXT CHAR                  8C211770
                      *                                                    8C211780
09F5 00 C5000A79  PPEY1 LD    L1 KT1LT+16   PACK 2 EBDIC CHARS              8C211790
09F7 0  1008          SLA     8                                            8C211800
09F8 0  1808          RTE     24                                           8C211810
09F9 0  72FF          MDX     2 -1          SKIP IF DONE TWO CHARS         8C211820
09FA 0  7019          MDX     PPEY3         FETCH NEXT CHAR                8C211830
09FB 0  6202          LDX     2 2                                          8C211840
09FC 0  1800          RTE     16                                           8C211850
09FD 00 D480010E      STO   I KIWC          PLACE IN OUTPUT AREA           8C211860
09FF 00 7401010E      MDX   L KIWC,1       NEXT STORAGE AREA              8C211870
0A01 0  F015          EOR     PPEX2                                        8C211880
0A02 00 4C200A14      BSC   L PPEY3,Z      BR - NOT DBLE BLANK            8C211890
0A04 0  61FF  PPEY8   LDX     1 -1          SET TERM                       8C211900
0A05 00 6D8001DE      STX   I1 KIWC                                        8C211910
0A07 00 4480012C      BSI   I KEY           GO PRINT WHOLE EDIT            8C211920
0A09 0  01DF          OC      KEY1N         MSG AREA                       8C211930
0A0A 0  0000          OC      0                                            8C211940
0A0B 0  C80C          LDD     PPEX3         RESTORE XRS, A AND Q           8C211950
0A0C 00 65000000  PPEY5 LDX   L1 /0000                                     8C211960
0A0E 00 66000000  PPEY6 LDX   L2 /0000                                     8C211970
0A10 00 67000000  PPEY7 LDX   L3 /0000                                     8C211980
0A12 00 4C8009E0      BSC   I PPECO         EXIT TO USER                   8C211990
                      *                                                    8C212000
0A14 0  7301  PPEY3   MDX     3 1           SKIP IF DONE                   8C212010
0A15 0  7005          MDX     PPEY4                                        8C212020
0A16 0  70E0          MDX     PPEY8                                        8C212030
                      *                                                    8C212040
0A17 0  4040  PPEX2   OC      /4040         DOUBLE SPACE EBDIC             8C212050
0A18    0002  PPEX3   BSS   E 2             SAVED A AND Q                  8C212060
                      *                                                    8C212070
                      *                                                    8C212080
                      *                                                    8C212090
                      *                                                    8C212100
0A1A    0000          BSS   E               KEYBOARD CODES                 8C212110
0A1A 0  0000  KSNS    OC      /0000         SENSE-NO RESET                 8C212120
0A1B 0  0F02          OC      /0F02                                        8C212130
0A1C 0  0000  KMSG    OC      /0000         MESS ADRS                      8C212140
0A1C          KECGO   EQU     KMSG                                         8C212150
0A1D 0  0000  KOUT    OC      /0000         ROT-TLT OUTPUT TABLE           8C212160
0A1E 0  0000          OC      /0000                                        8C212170
0A1F 0  0000          OC      /0000                                        8C212180
0A20 0  0004  K0004   DC      4             CONSTANT                       8C212190
                      *                                                    8C212200
0A21 0  4400  KL      DC      /4400         ACC                            8C212210
0A22 0  0000  KAQ     DC      0             Q REG                          8C212220
0A23 0  0000          DC      0                                            8C212230
                                                                           8C212240
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0A24 0  00D0      KRDY  DC     /00D0      SENSE - RESET CMND         8C212250
0A25 0  0F03            DC     /0F03                                 8C212260
0A26 0  0A24      KPRT  DC     KRDY       PRINT COMMAND              8C212270
0A27 0  0902            DC     /0902                                 8C212280
0A28 0  00D0      KPCO  DC     /0000      KBD PROCEED COMMAND        8C212290
0A29 0  0C02            DC     /0C02                                 8C212300
0A2A 0  010F      KREO  OC     KEYIN      READ KBO COMMAND           8C212310
0A2B 0  0A02            DC     /0A02                                 8C212320
C^2C 0  0D01      KONE  DC     1          CONSTANT 1                 8C212330
0A20 0  8120      KN    DC     /8120      UPPER CASE N               8C212340
0A2E 0  8060      KY    DC     /8060                 Y               8C212350
0A2F 0  4420            DC     /4420                 *               8C212360
0A3D 0  FFFF            OC     /FFFF                                 8C212370
0A31 0  8420      KECPD DC     /8420                                 8C212380
0A32 0  80A0            OC     /80A0                 +               8C212390
0A33 0  4000            DC     /4000                 -               8C212400
                  *                                                  8C212410
0A34 0  0000      KECOD OC     /0000      SPACE                      8C212420
0A35 0  2000            DC     /2000      0                          8C212430
0A36 0  1000            DC     /1000      1                          8C212440
0A37 0  0800            DC     /0800      2                          8C212450
0A38 0  0400            DC     /04D0      3                          8C212460
0A39 0  0200            DC     /0200      4                          8C212470
0A3A 0  0100            DC     /0100      5                          8C212480
0A38 0  0080            DC     /0080      6                          8C212490
0A3C 0  0040            DC     /0D40      7                          8C212500
0A3D 0  0020            DC     /0020      8                          8C212510
0A3E 0  0010            OC     /0010      9                          8C212520
                  *                                                  8C212530
0A3F 0  9D00      KECAD DC     /9000      A                          8C212540
0A40 0  8800            DC     /88D0      B                          8C212550
0A41 0  84D0      KC    DC     /84D0      C                          8C212560
0A42 0  8200            DC     /82D0      D                          8C212570
0A43 0  8100      PBIX2 DC     /8100      E                          8C212580
0A44 0  8080            DC     /8080      F                          8C212590
                  *                                                  8C212600
0A45 0  00D2      KRENT DC     /D002      ERASE FIELO                8C212610
0A46 0  0004      KERSE DC     /0004      ERASE CHAR                 8C212620
0A47 0  0008      KENDK OC     /0008      END OF MESSAGE             8C212630
0A48 0  4100      KAL   DC     /4100      LOWER CASE N               8C212640
0A49 0  2020            OC     /2020                 Y               8C212650
0A4A 0  4220            DC     /4220                 *               8C212660
0A4B 0  FFFF            OC     /FFFF                                 8C212670
0A4C 0  8220            OC     /8220                 .               8C212680
0A4D 0  FFFF            DC     /FFFF                                 8C212690
0A4E 0  FFFF            OC     /FFFF                                 8C212700
0A4F 0  2420      KCMA  DC     /2420                 ,               8C212710
                  *********************************************      8C212720
                  *                                                  8C212730
                  *                      TYPEWRITER COOES            8C212740
                  *                        AND EBOIC COOES           8C212750
                  *                                          *       8C212760
0A50 0  16C7      KTGLT DC     /16C7      G                          8C212770
0A51 0  26C8            DC     /26C8      H                          8C212780
0A52 0  22C9            OC     /22C9      I                          8C212790
0A53 0  7ED1            DC     /7E01      J                          8C212800
0A54 0  5A02            DC     /5AD2      K                          8C212810
                  *                                                  8C212820
0A55 0  5ED3      KLRT  DC     /5ED3      L                          8C212830
0A56 0  72D4            DC     /72D4      M                          8C212840
                  *                                                  8C212850
0A57 0  96E7            OC     /96E7      X                          8C212860
0A58 0  52D6            DC     /5206      O                          8C212870
0A59 0  5607            DC     /56D7      P                          8C212880
0A5A 0  6608            DC     /6608      Q                          8C212890
0A58 0  62D9            OC     /62D9      R                          8C212900
0A5C 0  9AE2            DC     /9AE2      S                          8C212910
0A5D 0  9EE3            DC     /9EE3      T                          8C212920
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0A5E 0  82E4            DC     /82E4      U                          8C212930
0A5F 0  86E5            DC     /86E5      V                          8C212940
0A60 0  92E6            DC     /92E6      W                          8C212950
0A61 0  76D5            DC     /76D5      N                          8C212960
                  *                                                  8C212970
0A62 0  A6E8            DC     /A6E8      Y                          8C212980
0A63 0  D65C            DC     /D65C      *                          8C212990
0A64 0  806B            OC     /806B      ,                          8C213000
0A65 0  004B      KTPLT DC     /004B      .                          8C213010
0A66 0  0A4E            DC     /DA4E      +                          8C213020
0A67 0  8460            DC     /8460      -                          8C213030
                  *                                                  8C213040
0A68 0  2140      KTDLT OC     /2140      SPACE                      8C213050
0A69 0  C4F0      KTILT DC     /C4F0      0                          8C213D60
0A6A 0  FCF1            DC     /FCF1      1                          8C213070
0A68 0  D8F2            DC     /D8F2      2                          8C213080
0A6C 0  DCF3            DC     /DCF3      3                          8C213090
0A6D 0  F0F4            OC     /F0F4      4                          8C213100
0A6E 0  F4F5            DC     /F4F5      5                          8C213110
0A6F 0  D0F6            DC     /00F6      6                          8C213120
0A70 0  D4F7            DC     /04F7      7                          8C213130
0A71 0  E4F8            OC     /E4F8      8                          8C213140
0A72 0  E0F9            DC     /E0F9      9                          8C213150
                  *                                                  8C213160
0A73 0  3EC1      KTALT DC     /3EC1      A                          8C213170
0A74 0  1AC2            DC     /1AC2      B                          8C213180
0A75 0  1EC3            DC     /1EC3      C                          8C213190
0A76 0  32C4            DC     /32C4      D                          8C213200
0A77 0  36C5            OC     /36C5      E                          8C213210
0A78 0  12C6            DC     /12C6      F                          8C2?3220
                  *                                                  8C213230
0A79 0  8158      KCR   OC     /8158      CARRIER RETURN             8C21324D
                  *                                                  8C213250
                  *                       KEYBDARD ERROR MSG         8C21326r
0A7A 0  D600      KFELD OC     /06D0      *                          8C213270
0A7B 0  D600            OC     /D600      *                          8C213280
0A7C 0  D600            OC     /D600      *                          8C213290
0A7D 0  8100            OC     /8100      CR                         8C213300
0A7E 0  3600            DC     /3600      E                          8C213310
0A7F 0  C400            DC     /C400      O                          8C213320
0A80 0  C400            DC     /C400      O                          8C213330
0A81 0  FC00            DC     /FC00      1                          8C213340
0A82 0  2100            DC     /2100                                 8C213350
0A83 0  2100            DC     /2100      SP                         8C213360
0A84 0  5E00            DC     /5E00      L                          8C21?370
0A85 0  2200            DC     /2200      I                          8C213380
0A86 0  7600            DC     /7600      N                          8C213390
0A87 0  3600            OC     /3600      E                          8C213400
0A88 0  2100            DC     /2100      SP                         8C213410
0A89 0  1ED0            OC     /1E00      C                          8C213420
0A8A 0  3E00            DC     /3E00      A                          8C213430
0A88 0  7600            DC     /7600      N                          8C213440
0A8C 0  1E00            OC     /1E00      C                          8C213450
0A8D 0  3600            DC     /3600      E                          8C213460
0A8E 0  5E00            DC     /5E00      L                          8C213470
0A8F 0  5E00            OC     /5E00      L                          8C213480
0A90 0  3600            DC     /3600      E                          8C213490
0A91 0  3200            DC     /3200      O                          8C213500
0A92 0  8120      K8120 DC     /8120                                 8C213510
0A93 0  8101            DC     /8101      CR                         8C213520
                  *                                                  8C213530
                  *                 ROUTINE TO READ ONE              8C213540
                  *                 SKELTON SECTION                  8C213550
                  *                                                  8C213560
0A94 0  0000      RDSK  OC     0                                     8C213570
0A95 0  C005            LD     RDSXD      GET LOR RETURN        SE   8C213580
0A96 00 04000124        STO  L /0124      SET                        8C213590
0A98 0  6050            LDX  X /0050      BRANCH TO LDR              8C213600
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4K EDIT CONTROL

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0A99 C0 4C800A94   ROSK1 BSC  1  RDSK       EXIT                    SX   8C213610
0A9B 0  0A99       ROSKO DC      ROSK1      RETURN                       8C213620
                   ********************************************************8C213630
                   *                                                      8C213640
                   *                                                      8C213650
                   *                                                      8C213660
                   *              XFER VECTOR TBLS BY FORM NO.            8C213670
0A9C 0  0AB1       LRAIT DC      DONT       FORM 0                       8C213680
0A9D 0  0ADC                     DC         LRTF1          1             8C213690
0A9E 0  0A04                     DC         LRTF2          2             8C213700
                   *                                                      8C213710
                   *                                                      8C21372D
                   *                                                      8C213730
                   *                                                      8C213740
                   *                                                      8C21375D
                   *                                                      8C213760
                   *                                                      8C213770
                   *                                                      8C213780
0A9F 0  0000       LWKA  DC                 WORK STORAGE AREA            8C213790
                   *                                                      8C213800
0AAD 0  0000       LOD1T DC                                         SE    8C213810
0AA1 0  6200             LDX   2 0                                       8C213820
0AA2 00 6E00043F         STX   L2 LGROP     RESET GROUP CNTR             8C213830
0AA4 00 65800AAD         LDX   I1 LDO1T                                  8C213840
0AA6 0  C101             LD    1 1          LD CHR / WORD CNT            8C213850
0AA7 0  00F7             STO   LWKA         SAVE IT                      8C213860
0AA8 0  6901             STX   1 LWCLD+1                                 8C213870
0AA9 00 65800000   LWCLD LDX   I1           LD FORM NUMBER               8C213880
0AAB 00 45800A9C         BSI   I1 LRAIT     BRANCH TO RTN                8C213890
0AAO 00 74020AAO   DONT1 MDX   L  LOO1T,2   INCR RETURN                  8C213900
0AAF 00 4C800AAD         BSC   1  LDO1T     EXIT                    SX   8C213910
                   *                                                      8C213920
0A81 0  0000       DDNT  OC      0                                        8C213930
0A82 00 4C000AAD         BSC   L  DONT1                                  8C213940
                   *                                                      8C213950
                   *                                                      8C213960
                   *                                                      8C213970
0A84 0  0000       L8GNR OC                                         SE    8C213980
0A85 00 650001DE         LOX   L1 K1WC      LO INPUT T8L AODR            8C213990
0A87 0  C100             LD     1 0         LO INPUT WC                  8C214000
0A88 00 D400043E         STD   L  LWC       SAVE WC                      8C214010
0A8A 00 6680043E         LDX   I2 LWC                                    8C214020
0A8C 0  7201             MDX    2 1                                      8C214030
0A8D 00 7402043E         MDX   L  LWC,2     ADD 2 TO WC                  8C214040
0A8F 00 4C800AB4         BSC   1  L8GNR     EXIT                    SX   8C214050
                   *                                                      8C21406D
                   *                                                      8C21407D
                   *                                                      8C214080
                   *                 DATA WRONG ERROR                     8C214090
0AC1 0  0000       LERR  OC      0                                        8C2141D0
0AC2 00 44800132         BSI   I  SER       DATA WRONG               SRC  8C214110
0AC4 0  D888             DC       PCK8E                                  8C21412D
                   *                                                      8C214130
                   *                                                      8C214140
                   *                                                      8C214150
0AC5 0  0000       LWCC  OC                 SE                           8C214160
0AC6 0  6801             STX   3 LDO1+1                                  8C214170
0AC7 00 C5000000   LDO1  LD    L1           LD SPACE                     8C214180
0AC9 00 44200ACD         BSI   L  LMTRM,Z   BR IF NOT SPACE              8C214190
0AC8 00 4C800AC5         BSC   1  LWCC      EXIT                    SX   8C214200
                   *                                                      8C214210
                   *                                                      8C214220
                   *                                                      8C214230
                   *                                                      8C214240
0AC0 0  D000       LMTRM DC                                         SE    8C214250
0ACE 0  F004             EDR      LTERM                                  8C214260
0ACF 00 44200AC1         BSI   L  LERR,Z    BR IF ERROR              SRC  8C214270
0AD1 00 4C800ACD         BSC   I  LMTRM                              SX   8C214280
```


4K EDIT CONTROL

```
0AD3 0  FFFF       LTERM DC      /FFFF      ALL BITS                     8C214290
                   *                                                      8C214300
                   *                                                      8C214310
                   *                                                      8C214320
                   *                                                      8C214330
                   *                                                      8C214340
                   *                                                      8C214350
                   *                                                      8C214360
0AD4 0  0000       LRTF2 DC                                         SE    8C214370
0AD5 0  D002             STO      LCHBW     SET CHR / WD                 8C214380
0AD6 00 44800137         BSI   I  PHKYB     GO CONVERT TO HEX        SRC  8C214390
0AD8 0  0000       LCHBW DC                 CHR / BINARY WORD            8C214400
0AD9 0  0437             DC       ZERD      DISPLACEMENT AODR            8C214410
0ADA 00 4C800AD4         BSC   1  LRTF2     EXIT                    SX   8C214420
                   *                                                      8C214430
                   *                                                      8C214440
                   *                                                      8C214450
                   *                                                      8C214460
0ADC 0  0000       LRTF1 DC                                         SE    8C214470
0ADD 0  D003             STO      LCHBD     SET CHR / WD                 8C214480
0ADE 0  4006             BSI      LTRFX     GO TO SETUP AND CK           8C214490
0AOF 00 44800136         BSI   I  POKYB     GO CONVERT TO DEC        SRC  8C214500
0AE1 0  0000       LCHBD DC                 CHR / BINARY WORD            8C214510
0AE2 0  D437             DC       ZERO      DISPLACEMENT AOOR            8C214520
0AE3 00 4C800ADC         BSC   I  LRTF1     EXIT                    SX   8C214530
                   *                                                      8C214540
                   *                                                      8C214550
                   *                                                      8C214560
                   *                                                      8C214570
0AE5 0  0000       LTRFX DC                                         SE    8C214580
0AE6 0  40CD             BSI      LBGNR     GO SET UP FOR FORM           8C214590
0AE7 00 67800A9F         LDX   I3 LWKA      LD CHAR / WC CNT             8C214600
0AE9 0  7301             MDX    3 1                                      8C214610
0AEA 0  40DA             BSI      LWCC      GO TO CHECK FORM             8C21462D
0AEB 00 4C800AE5         BSC   1  LTRFX     EXIT                    SX   8C214630
                   *                                                      8C214640
                   *                                                      8C214650
                   *                                                      8C214660
                   *                                                      8C214670
                   *                                                      8C214680
                   *                 PUNCH LEADER                         8C214690
                   *                                                      8C214700
0AE0 0  0000       PPT   DC      D                                  SE    8C214710
0AEE 0  6303       PPT1  LDX     3 3          SET IXING                   8C214720
0AEF 0  C009       PPT1A LD      WDCT         SET WD CT                   8C214730
0AF0 D  D018             STO      CHOUT                                  8C214740
0AF1 00 C7000AF9         LD    L3 LEAOE-1     GET PATTERN                 8C214750
0AF3 0  D014             STO      X1OUT       SET                         8C214760
0AF4 0  4008             BSI      PUTAP       PUNCH TAPE           SRC    8C214770
0AF5 0  73FF             MDX    3 -1          DECR IX 3                   8C214780
0AF6 0  70F8             MDX      PPT1A       LOOP                        8C214790
0AF7 00 4C800AED         BSC   I  PPT         EXIT                    SX  8C214800
                   *                                                      8C214810
0AF9 0  0019       WDCT  OC      25           WD CT                       8C214820
0AFA 0  7F00       LEAOE OC      /7F00        PATTERNS                    8C214830
0AF8 0  0D00             OC      /0000                                    8C214840
0AFC 0  7F00             DC      /7F00                                    8C214850
                   *                                                      8C214860
                   *                 PUNCH TAPE                           8C214870
                   *                                                      8C21488D
0AFD 0  0000       PUTAP DC      0                                  SE    8C214890
0AFE 0  0808       BCK   X10     SEN55        SENSE                       8C214900
0AFF 0  1808             SRA     8                                        8C214910
0800 00 4C040AFE         BSC   L  BCK,E       BRANCH = NOT READY          8C214920
0B02 0  0809             X10      PUNK        PUNCH A CHR                 8C214930
0B03 00 74FF0809         MDX   L  CHOUT,-1    DECR WD CT                  8C214940
0B05 0  70F8             MDX      BCK         LOOP                        8C214950
                                                                         8C214960
```

```
0806 00 4C800AFD
0808    0000
0808 0  0000
0809 0  0000
080A 0  0000
080B 0  1F01
080C 0  0808
080D 0  1900
080E 0  081D
080F 0  024D
0810 0  0000

0811 0  6909
0812 0  6A0A
0813 0  6811
0814 00 6500FFBD
0816 00 C5000230
0818 00 4C20082C
081A 00 65000000
081C 00 66000000
081E 00 C4000141
0820 00 F400043D
0822 00 44180AED
0824 00 67000000
0826 0  C0E9
0827 0  1001
0828 00 4C1009CF
082A 00 4C00098D
082C 0  1810
082D D  D022
082E 0  7101
082F 0  70D1
0830 0  7022
0831 0  6204
0832 D  1004
0833 0  001E
0834 00 C5000230
0836 00 4C180853
0838 0  6300
0839 0  4828
083A 0  7309
083B 0  1003
083C 00 4C180845
083E 0  7301
083F 00 4C280843
0841 0  1001
0842 0  70F8
0843 0  6800
0844 0  C00C
0845 0  E80C
0846 0  71D1
0847 0  72FF
0848 0  70E9
0849 00 67800850
084B 00 D7000140
0840 00 74010850
084F 0  700E

0850 0  0000
0851 0  000D
0852 D  0000

0853 0  CD2C
```

```
        BSC  I  PUTAP      EXIT                    SX  8C214970
*                                                      8C214980
        BSS  E  0                                      8C214990
XIOUT   OC      0          OUTPUT AREA                 8C215000
CHOUT   OC      0          WD CT                       8C215010
SENSS   DC      0          SENSE IOCC                  8C215020
        OC      /1F01                                  8C215030
PUNK    OC      XIOUT      PUNCH IOCC                  8C215040
        DC      /1900                                  8C215050
RDSW    OC      DTSW       RD SWS IOCC                 8C215060
        OC      /0240                                  8C215070
DTSW    DC      0          SW STORAGE                  8C215080
*                                                      8C21509D
*                  CONVERT AND PUNCH                   8C215100
*                                                      8C21511D
HB05    STX   1 EXT+1      SAVE IXING                  8C215120
        STX   2 EXT1+1                                 8C21513D
        STX   3 EXT2+1                                 8C215140
        LOX   L1 -80       SET IXING                   8C215150
        LD    L1 KEYIN+81  GET A WD                    8C215160
        BSC   L  HB05A,Z   BRANCH IF NOT 0             8C215170
EXT     LOX   L1 0         RESTORE IXING               8C21518D
EXT1    LOX   L2 0                                     8C21519D
        LO    L  BINRY+3   GET CD NO                   8C215200
        EOR   L  TERM      CK FOR END CD               8C215210
        BSI   L  PPT,+-    PUNCH TRAILER IF END        8C215220
EXT2    LDX   L3 0                                     8C21523D
        LD       DTSW      GET SWS                     8C215240
        SLA      1                                     8C215250
        BSC   L  PEOEX,+-  BRANCH IF NOT BOTH          8C215260
        BSC   L  PEDEN     PUNCH CARD                  8C215270
HB05A   SRA      16        CLEAR WD CT                 8C215280
        STO      PCAM                                  8C215290
HB06    MDX   1  1         DECR IX 1                   8C215300
        MDX      HB07      CONTINUE                    8C215310
        MDX      LB06      PUNCH CARD                  8C215320
HB07    LDX   2  4         SET 4 CHRS                  8C21533D
HB10    SLA      4         MOVE CHR                    8C215340
        STO      TEMP1     SAVE                        8C21535D
        LD    L1 KEYIN+81  GET WD                      8C215360
        BSC   L  LB06,+-   BRANCH IF 0                 8C215370
HTJB    LOX   3  0         SET COUNTER                 8C215380
        BSC      +Z        IS IT NEG                   8C21539D
        MDX   3  9         YES                         8C2154D0
        SLA      3         REMOVE ZONE                 8C215410
        BSC   L  HTBZ,+-   BRANCH IF 0                 8C215420
        MDX   3  1         INCR CTR                    8C215430
HTJB1   BSC   L  HTBX,+Z   BRANCH IF NEG                8C215440
        SLA      1         MOVE BIT                    8C215450
        MDX      HTJB1-1   BRANCH                      8C21546D
HTBX    STX   3  TEMP      SAVE CT                     8C215470
        LD       TEMP      GET CT                      8C215480
HTBZ    OR       TEMP1     ADD TO SAVED                8C215490
        MDX   1  1         DECR IX 1                   8C215500
        MDX   2  -1        DECR IX 2                   8C215510
        MDX      HB1D      LOOP                        8C215520
        LDX   13 PCAM      SET IX 3                    8C215530
        STO   L3 BINRY+2   SAVE                        8C215540
        MDX   L  PCAM,1    INCR LOC                    8C21555D
        MDX      HB06      LOOP                        8C215560
*                                                      8C215570
PCAM    DC       0         STORAGE                     8C21558D
TEMP    DC       0                                     8C215590
TEMP1   DC       0                                     8C21560D
*                                                      8C215610
*                  PUNCH EDIT                          8C21562D
*                                                      8C21563D
LBD6    LD       H8100     GET E                       8C21564D
```



```
0854 00 D400013F
0856 00 C4000141
0858 00 F400043D
085A 00 4C180883
085C 00 C4000142
085E 0  8022
085F 0  D004
0860 0  1008
0861 00 0400013E
0863 00 66000000
0865 00 6500013E
0867 0  C100
0868 0  D09F
0869 0  C014
086A 00 D4000B09
086C 0  4090
086D 0  7101
086E 0  C100
086F 0  D098
0870 0  C000
0871 0  D097
0872 0  408A
0873 0  C100
0874 0  1008
0875 0  0092
0876 0  C007
0877 D  0091
0878 00 44000AFD
087A 0  7101
087B D  72FF
087C 0  70F1
087D 0  709C

087E 0  0001
087F 0  8000
0880 0  8100
0881 0  0004
0882 0  0300

0883 0  C0FE
0884 00 D400013E
0886 0  6203
0887 0  7000
0888    0012
0891    0006
0894 0  FFFF
0895    0012
089E 0  FFFF
089F    0012
08A8    0007
08AC 0  FFFF
08AD    0012
08B6    0008
08BA 0  FFFF
08B8    0012
08C4    0012
08CD    0005
08D0 0  FFFF
08DI    000F
0809 0  FFFF
08DA    0012
08E3    0002
08E4 D  FFFF
08E5 0  0000
08E6 0  3005
08E7 00 4C800BE5
08EA    058A
```

```
        STO   L  BINRY+1   SAVE
        LD    L  BINRY+3   GET CD NO
        EOR   L  TERM      CK FOR TERM
        BSC   L  LB08,+-   BRANCH IF TERM
        LO    L  BINRY+4   GET NO ENTRIES
        A        FOUR      ADD 4
        STO      LB0A+1    SAVE
        SLA      8         MOVE
        STO   L  BINRY     SAVE
LB0A    LDX   L2 0         SET IXING
LB09    LOX   L1 BINRY
        LD    1  0         GET WD
        STO      XIOUT     SET
        LD       ONE       GET 1
        STO   L  CHOUT     SET
        BSI      PUTAP     PUNCH TAPE
        MDX   1  1         INCR IX 1
LB07    LD    1  0         GET WD
        STO      XIOUT     SET
        LD       ONE       SET WD CT
        STO      CHOUT
        BSI      PUTAP     PUNCH TAPE
        LD    1  0         GET WD
        SLA      8         SET 2ND HALF
        STO      XIOUT     SET
        LD       ONE       GET 1
        STO      CHOUT     SET WD CT
        BSI   L  PUTAP     PUNCH TAPE
        MDX   1  1         INCR IX 1
        MDX   2  -1        DECR IX 2
        MDX      LB07      LOOP
        MDX      EXT       EXIT
*
ONE     OC       1         CONSTANTS
K8000   DC       /800D
H8100   OC       /B100
FOUR    DC       4
TREE    OC       /0300
*
LB08    LD       TREE      GET 0300
        STO   L  BINRY      SET
        LOX   2  3         SET IX 2
        MDX      LB09      BRANCH
PCKBE   EBC      .E003 CNTRL-ILLEGAL.
        EBC      . ENTRY.
PCKX4   OC       /FFFF
PECX9   EBC      .E005 CNTRL-1442 ER.
PECXD   DC       /FFFF
PECXF   EBC      .$$A001 CNTRL-EDIT .
        EBC      .CD LIST.
        OC       /FFFF
SE002   EBC      .E002 CNTRL-ENTRY T.
        EBC      .OO LARGE.
        DC       /FFFF
SM2     EBC      .C000 CNTRL-ENTER 2.
        EBC      . DIGIT PIO TO BE E.
        EBC      .OITED.
        DC       /FFFF
SM33    EBC      .A002 END OF PRG.
        OC       /FFFF
LEN01   EBC      .E004 CNTRL-FORMAT .
        EBC      .ER.
        DC       /FFFF
HLTE    DC       0
WAITS   WAIT     5                 RELOAD REQUIRED
        BSC   I  HLTE
        END      START
```

```
                                                       8C215650
                                                       8C215660
                                                       8C215670
                                                       8C215680
                                                       8C215690
                                                       8C215700
                                                       8C215710
                                                       8C215720
                                                       8C215730
                                                       8C215740
                                                       8C21575D
                                                       8C215760
                                                       8C215770
                                                       8C215780
                                                       8C215790
                                                  SRC  8C215800
                                                       8C215810
                                                       8C215820
                                                       8C215830
                                                       8C215840
                                                       8C215850
                                                  SRC  8C215860
                                                       8C215870
                                                       8C215880
                                                       8C215890
                                                       8C215900
                                                       8C215910
                                                  SRC  8C215920
                                                       8C215930
                                                       8C215940
                                                       8C215950
                                                       8C215960
                                                       8C21597D
                                                       8C215980
                                                       8C215990
                                                       8C216000
                                                       8C216010
                                                       8C216020
                                                       8C216030
                                                       8C21604D
                                                       8C216050
                                                       8C216060
                                                       8C216070
                                                       8C216080
                                                       8C216090
                                                       8C216100
                                                       8C216110
                                                       8C216120
                                                       8C21613D
                                                       8C216140
                                                       8C216150
                                                       8C216160
                                                       8C216170
                                                       8C216180
                                                       8C216190
                                                       8C216200
                                                       8C216210
                                                       8C216220
                                                       8C216230
                                                       8C216240
                                                       8C216250
                                                       8C216260
                                                       8C21627D
                                                  SRC  8C216280
                                                       8C216290
                                                  SX   8C216300
                                                8C21630 8C216310
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BCK	0AFE	0B00,0B05
BGNR	043B	
BINRY	013E	059F,07A2,07B0,07BB,07C5,0B39,0B1E,0B4B,0B54,0B56, 0B5C,0B61,0B65,0B84
BWC	0130	0835,0837,0863,0B8C
CHOUT	0B09	0AF0,0B03,0B6A,0B71,0B77
CKYN	012D	
CKYNE	077A	0120,0792,0794
CKYNO	0794	077E,07B3
CKYN1	0792	0788,07B0
COOE	0586	
CP1D	07FF	07DA,07E6
DKYB	0818	0136,081A
DONT	0AB1	0A9C
DONT1	0AA0	0AB2
DTSW	0B10	0919,0923,0956,09B6,0B0E,0B26
END0	013B	
END1	05B9	013A,05AF
ERR	0439	
ERR04	05E3	05A3
EXIT	072B	
EXT	081A	0B11,087D
EXT1	0B1C	0B12
EXT2	0B24	0B13
FOUR	0B81	0B5E
HB05	0B11	09BB,09BB
HB05A	0B2C	0B18
HB06	0B2E	0B4F
HB07	0B31	0B2F
HB10	0B32	0B4B
HKY8	0821	0137,081B,0B28,086F,0879
HLT	0585	
HLTE	0BE5	05B5,0BE7
HTBX	0B43	0B3F
HTBZ	0B45	0B3C
HTDB	0B3B	
HTOB1	0B3F	0B42
H8100	DB80	0B53
KAL	0A48	0687
KAQ	0A22	05EB,062F
K8KSP	0702	06FB
KC	0A41	
KCHK	0621	05FF
KCMA	0A4F	06CE
KCOMA	0700	06E2
KCR	0A79	05F6,0621
KDEC	06B3	065C
KDEC1	06B4	06B2,0687
KEBC2	05FB	061E
KEBC3	0602	0620
KEBC4	0605	060E
KEBC6	061F	0611
KECA0	0A3F	D66B,0686
KECG0	0A1C	0681,06B3,06B6
KECOD	0A34	065A,06B3,08DE,09A6,09EE
KECP0	0A31	066F,06A9
KENOK	0A47	0709
KERR	0720	D678,0698,D606,0706,0710,0724
KERR1	0735	073D
KERSE	0A46	06E9
KEY	012C	D59B,0508,07CF,090F,097E,0984,0902,09D9,0A07
KEYE	05E7	012C,05EE,05F2,0625,0632,0634,0637
KEYFM	0729	063B,0660
KEYIN	01DF	0645,0778,0780,0785,07BA,087F,0915,0936,093E,0992, 099A,09A8,098D,09C0,09E5,09EC,0A09,0A2A,0B16,0B34

KEYN0	072A	063F,070F
KEYOG	0641	0742
KEYO	0647	06A6,06B5,06E6,06EF,06F2,06FE,070B,0736,0740
KEY1	064B	0653
KEY2	064D	0655
KEY3	0656	0650
KEY96	0629	05E8,072B
KEY97	062B	05E9
KEY9B	0620	05EA
KEY99	0631	05ED
KFELO	0A7A	072E
KFM0	067D	0664,0671
KFM01	067E	0684
KFM02	0686	068C
KFMS	0658	
KFMS1	0659	065F
KFM2	0666	
KFM21	0667	0660
KFRM	0636	0627
KHEX	06B6	066A
KIN0	080E	0135,0816
KIN1	0803	0134,080C
KIWC	010E	0643,06C7,0602,060C,06E0,06FB,070D,0712,0714,0718, 0721,0732,073B,073E,0808,0812,09E7,09F0,09FF,0A05, 0AB5
KL	0A21	068E
KLRT	0A55	069D
KMOX	06AB	0681
KMPX	06B1	0689,06AB
KMSG	0A1C	05F0,05FB,0605,061C,0A1D
KN	0A2D	067F,06B1
KNBY	D745	0649,075C,0765,076B
KNBY0	074B	0756
KNBY1	074D	0753
KNBY4	075D	0757
KNBY5	0761	0746,0750
KNEG	0744	0725,0738
KONE	0A2C	05FD,0612,0662,069F,06C0,06DF
KOUT	0A10	05F4,0616,061A,06A1,06C2
KPCO	0A2B	0648
KPNE	069F	067C
KPRT	0A26	0769,0773
KRDY	0A24	0763,076C,0A26
KRED	0A2A	0647,0656,0659,0659,0667,0667,066E,066E,0708,0708
KRENT	0A45	0704
KSNS	DA1A	D640,074D
KSPC	06CC	Dc90
KSPCA	0714	071B
KSPCE	0725	071E,0723
KSPC2	060F	06DA
KSPC5	06EB	0600
KSPC6	06FB	06F5
KSPC9	0703	06E8
KSTO	06B8	0684,06BC,06CA
KTALT	0A73	
KTGLT	0A50	0602,06BE
KTILT	0A69	05B6,09F5
KTIME	0767	0749,0754
KTOLT	0A68	
KTPLT	0A65	C67A
KTYP	076B	0584,061B,0623,06A4,06C5,06E4,06FD,0730,0776
KTYPS	0584	
KTYP1	0769	0779
KTYP5	076C	0772
KTYP6	0773	076F
KY	0A2E	
KOOFF	05E6	05A1
KOOO2	07B9	06D4,079C

K0003	0802	07F5
K0004	0A20	
K3095	05E2	0588,05B9
K8000	087F	0676,0696
K8120	0A92	
LBGNR	0AB4	0438,0ABF,0AE6
LB0A	0B63	085F
LB06	0853	0830,0836
LB07	0B6E	087C
LB08	0B83	085A
LB09	0B65	0887
LCH8D	0AE1	0A0D
LCH8W	0A08	0A05
LDDIT	0AA0	0727,0AA4,0AA0,0AAF
LD01	0AC7	0AC6
LEADE	0AFA	0AF1
LEM01	08DA	
LERR	0AC1	0439,0ACF
LGROP	043F	0AA2
LMTRM	0ACD	0438,0AC9,0A01
LRAIT	0A9C	0AAB
LRTF1	0ADC	0A90,0AE3
LRTF2	0A04	0A9E,0A0A
LTERM	0AD3	0ACE
LTRFX	0AE5	043C,0A0E,0AE8
LWC	043E	0A88,0ABA,0ABD
LWCC	0AC5	043A,0AC8,0AEA
LWCLD	0AA9	0AA8
LWKA	0A9F	0AA7,0AE7
MIRM	0438	
NO	0798	0787
NOEN	0800	0708,07E4,07EA,07F6
NO1	0799	078C
NTPT	0928	0920,093A
ONF	087E	0869,0870,0876
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P8IX2	0A43	0944
P8IY1	09AF	099E
P8IY2	0981	099F
P8IY3	09A1	09A0
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PCK8A	0902	0808,08E0,08EA,08EE
PCK8B	0903	08FA,08F8
PCK8E	0888	0791,08C7,08F7,0AC4
PCK8X	08FE	08D7,08EC,08F4
PCK81	080C	08D8,08E4
PCK83	08F8	08E1
PCK84	08F5	08E8,08F0
PCKX1	0904	0889,08A8,08E7
PCKX2	0905	08E8
PCKX3	0906	08EF
PCKX4	0894	08F2
PDKWA	08C8	0887,0890,089E,0884,088A,088F,08C1
PDKX1	08CD	081E,08A5
PDKX2	08CC	0897
PDKX3	0805	08AE
PDKX4	08CA	08C2
PDKYA	08C1	0881
PDKY8	0136	0A0F
PDKYE	08C5	0888,08AA
PDKYF	0882	08C3
PDKYH	08A4	089A
PDKYJ	0898	08A6
PDKY1	0886	084E
PDKY2	088F	088E
PDKY3	0896	08A2
PDKY6	08A7	08A3

POKY7	08B6	08AC
PDKY8	08BF	08AF,08B7
POKY9	08BB	08C0
PECDR	0907	05D0,0969
PECOS	0967	090A
PECXC	0990	095A,09C5
PECXO	089E	094C,0950
PECXE	098F	0972,0977
PECXF	089F	0911
PECX1	098C	0908,0968
PECX3	098E	096C
PECX4	0992	0928
PECX5	0994	0928,092C,095C,09C2,09C7,09D1
PECX6	0996	0933,0960,098A,09CE,09D8
PECX7	0998	0958
PECX8	099A	09C6
PECX9	0B95	0980,0986,09D4,09DB
PECYA	093E	0941
PECYB	0968	094E
PECYC	095C	095E
PECYO	0974	0979
PECYE	093C	0926
PECYF	090C	
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PECY2	0963	090D
PECY3	0965	090E
PECY4	092C	092E
PECY5	0936	0939
PECY6	097E	0929
PECY7	0917	0983,098A
PECY8	0984	0931
PEO	0985	0953,097A,09CF
PEDEN	0980	082A
PEDEX	09CF	0828
PEDX1	09DF	098F
PEDY1	09D1	09C3
PEOY2	09C7	09C9
PEDY3	09D8	09CC
PEOY4	09C2	0907,09DE
PHDSW	0885	081C,0824,084C
PHKX1	087C	0819,0822,0878
PHKX2	087E	082F,0830,0841,084F,0858,0865,0888,0893,08A7,08AD, 08E5
PHKX3	087F	0832
PHKX4	0880	0833,083F,0867,0868,0869
PHKX5	0881	0866,088D
PHKX6	0882	086C
PHKX7	0883	0823
PHKX8	0884	0825
PHKYB	0137	0AD6
PHKYC	0846	0826
PHKYO	0826	0820
PHKYF	0861	0885
PHKYH	0865	088E
PHKYS	0877	0827
PHKY1	0847	083B,0891,0882
PHKY2	0843	0848
PHKY3	0852	083C,0856
PHKY4	085A	085F
PHKY5	0837	086E
PHKY6	0871	0828
PHKY7	0873	0829
PHKY8	0875	082A
PHKY9	085E	085C,0850
PPECD	09E0	0954,0978,0A12
PPEX2	0A17	0A01
PPEX3	0A18	09E4,0A0B
PPEY1	09F5	09F1

PPEY2	09EC	09F4
PPEY3	0A14	09FA,0A02
PPEY4	09E8	0A15
PPEY5	0A0C	09E1
PPEY6	0A0E	09E2
PPEY7	0A10	09E3
PPEY8	0A04	0A16
PPT	0AED	0921,0AF7,0822
PPT1	0AEE	
PPT1A	0AEF	0AF6
PT	0921	0918,091E,097D
PUNK	0B0C	0802
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RDSK1	0A99	0A98
ROSW	0B0E	0917
ROSXO	0A9B	0A95
SCH	0131	
SCHE	078A	0131,07C7
SCHER	07C1	078E
SCH1	07C5	078F,07C0,07C2
SECB	07FE	07D9,07E8
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SECSU	0133	
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SFN55	0B0A	0AFE
SER	0132	05E3,078F,07A9,08C5,08F5,0AC2
SERE	07CB	0132,07CC
SER1	0701	07CE
SE002	08A0	05E5,07AB
SE1	0709	
SE2	07E2	070F
SE3	07ED	07F2
SIA	07B6	
SIL	012F	
SILE	07A1	012F,07AC
SILER	07A9	07A6,07B4,07C4
SILSE	07AF	0130,0786
SILSW	0130	
SIL1	07AC	07A7,07A8
SIWB	07FD	07D8,07E0
SKINA	080B	0808
SKINB	0812	0815
SKINO	0135	
SKIN1	0134	0641
SKI1	0C17	012C,05AB,05C4
SK12	0C1B	012C,05B1
SKI3	0C19	012C
SKI4	0C1A	05B7
SM2	0BBB	059D
SM33	0B01	050D
SRST	05B8	0596,05A8
SRTRY	0441	079D,07D3
SSEUR	079A	
SSUEE	079A	012E,079B,079F,07A1
SSUER	012E	0599
STARI	058A	08E9
START	05B8	05B8,05E0
STBF	0440	0594,05C3,05D3,0700,07F3,07F7
STBF1	0801	05C5,07DC
STTR	0507	050A
STTRM	05C3	05B5
S00F0	07B8	07B3
S000F	07C9	07C1
S0008	07CA	07BD
S1	0599	
S1700	07AE	07A5
S2	013A	

SZE	05A6	05C2
TEMP	0B51	0843,0844
TEMP1	0B52	0833,0845
TERM	043D	05B3,05CD,0806,0820,0858
TREE	0B82	0883
TREX	043C	
WAIT1	0771	3001
WAIT2	0758	3002
WAIT3	0982	3003
WAIT4	0989	3004
WAIT5	0BF6	3005
WAIT6	09D6	3006
WAIT7	09DD	3007
WAIT8	050F	3008
WCC	043A	
WOCT	0AF9	0AEF
XIDUT	0B08	0AF3,0B0C,0B68,0B6F,0B75
XP10	05E1	05A5,05AD
YES	0796	0770
YES1	0797	0782
ZERO	0437	0AD9,0AE2

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028C                    ABS
                        ORG     /3001                                   8C300001
                *                                                       8C300002
                *                                                       8C300003
                ********************************************************8C300007
3001 0  079C            DC      WAIT1+1     1816 IS OUT OF FORMS.       8C300008
                *                           MAKE READY AND PRESS        8C300009
                *                           START.                      8C300010
                ********************************************************8C300011
                *                                                       8C300012
3002 0  0786            DC      WAIT2+1     1816 IS HUNG IN BUSY.       8C300013
                *                           RESTART IS REQUIRED.        8C300014
                ********************************************************8C300016
                *                                                       8C300017
                ********************************************************8C300018
3003 0  09A0            DC      WAIT3+1     1442 IS NOT READY           8C300019
                *                           BEFORE A READ.              8C300020
                *                           MAKE READY AND PUSH         8C300021
                *                           START.                      8C300022
                *                                                       8C300023
                ********************************************************8C300024
3004 0  09B4            DC      WAIT4+1     1442 READ ERROR.            8C300025
                *                           RELOAD CARDS AND            8C300026
                *                           PUSH START TO RETRY.        8C300027
                ********************************************************8C300028
                *                                                       8C300029
                ********************************************************8C300030
3005 0  0C11            DC      WAIT5+1     RELOAD REQUIRED TO          8C300031
                *                           CORRECT ERROR-PRESS         8C300032
                *                           START TO IGNORE.            8C300033
                ********************************************************8C300034
                *                                                       8C300035
                ********************************************************8C300036
3006 0  0A01            DC      WAIT6+1     1442 IS NOT READY           8C300037
                *                           BEFORE PUNCH.  MAKE         8C300038
                *                           READY AND PRESS START.      8C300039
                ********************************************************8C300040
                *                                                       8C300041
                ********************************************************8C300042
3007 0  0A08            DC      WAIT7+1     1442 PUNCH ERROR.           8C300043
                *                           PRESS START TO RETRY.       8C300044
                ********************************************************8C300045
                *                                                       8C300046
                ********************************************************8C300047
3008 0  05E6            DC      WAIT8+1     END OF PROGRAM.             8C300048
                *                           LOAD SKELETONS AND          8C300049
                *                           PRESS START TO RERUN.       8C300050
                ********************************************************8C300051
                        ORG     300                                     8C300052
                SKI1    EQU     3095                                    8C300053
                SKI2    EQU     SKI1+1                                  8C300054
                SKI3    EQU     SKI2+1                                  8C300055
                SKI4    EQU     SKI3+1                                  8C300056
                KEY     DC      KEYE                                    8C300060
                CKYN    DC      CKYNE                                   8C300070
                SSUER   DC      SSUEE                                   8C300080
                SIL     DC      SILE                                    8C300090
                SILSW   DC      SILSE                                   8C300100
                SCH     DC      SCHE                                    8C300110
                SER     DC      SERE                                    8C300120
                SECSU   DC      SECSE                                   8C300130
                SKINI   DC      KINI                                    8C300140
                SKINO   DC      KINO                                    8C300150
                PDKYB   DC      DKYB                                    8C300160
                PHKYB   DC      HKYB                                    8C300170
                ENDO    BSC  I  RDSK                                    8C300180
                S2      BSC  L  END1                                    8C300190
                        DC      0                                       8C300200
3009                                                                    8C300210
0C17
0C18
0C19
0C1A
012C 0  0611
012D 0  07A4
012E 0  07C4
012F 0  07CB
0130 0  0709
0131 0  07E4
0132 0  07F5
0133 0  07FF
0134 0  082D
0135 0  0838
0136 0  0842
0137 0  084B
0138 00 4C800ABE
013A 00 4C0005CD
013C 0  0000
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013D 0  0000    BWC   DC      0       BINARY WORD COUNT               8C300220
013E    00A0    BINRY BSS     160                                     8C300230
                ********************************************************8C300240
01DE 0  0000    KIWC  DC                                              8C300250
01DF    0258    KEYIN BSS     600                                     8C300260
                ********************************************************8C300270
0437 0  0000    ZERO  DC      /0000                                   8C300280
0438 0  0ADE    BGNR  DC      LBGNR                                   8C300290
0439 0  0AEB    ERR   DC      LERR                                    8C300300
043A 0  0AEF    WCC   DC      LWCC                                    8C300310
043B 0  0AF7    MTRM  DC      LMTRM                                   8C300320
043C 0  080F    TREX  DC      LTREX                                   8C300330
043D 0  FFFF    TERM  DC      /FFFF                                   8C300340
043E 0  0000    LWC   DC                      WC STORAGE              8C300350
043F 0  0000    LGROP DC                      GROUP COUNTER           8C300360
0440 0  0000    STBF  DC      0               DISPLACEMENT            8C300370
0441 0  0000    SRTRY DC      /0000                                   8C300380
                *                                                     8C300390
                *                                                     8C300400
                ********* EDIT IMAGE BUFFER **********                8C300410
0442 0  0000    SEIB  DC      /0000                                   8C300420
0443    0141          BSS     321                                     8C300430
0584 0  0792    KTYPS DC      KTYP                                    8C300440
0585 0  0C0F    HLT   DC      HLTE                                    8C300442
0586 0  0A93    CODE  DC      KTILT                                   8C300443
0588    0000          BSS  E  0                                       8C300444
0588 00 4C000590 SRST BSC  L  START   RESTART                         8C300450
                *                                                     8C300460
                *                     CONTROL SECTION                 8C300470
                *                                                     8C300480
058A 00 C400006F STARI LD     L  /006F  CHANGE LOR BASE ADR           8C300490
058C 00 84000602       A      L  K1048                                8C300500
058E 00 D400006F       STO    L  /006F                                8C300510
                *                                                     8C300520
0590 0  1010    START SLA     16        CLEAR ADDRESSES               8C300530
0591 00 D4000127      STO    L  /0127                                 8C300540
0593 0  D029          STO       SVIX3+1  ...                          8C300550
0594 0  D039          STO       END1+1                                8C300560
0595 00 D4000440      STO    L  STBF                                  8C300570
0597 0  C023          LD        BSAD1    RESET BSE ADRS               8C300572
0598 00 D4000125      STO    L  /0125                                 8C300580
                *                                                     8C300590
059A 0  C8ED          LOD       SRST     SET RESTART                  8C300600
059B 00 DC000000      STD    L  /0000                                 8C300610
                *                                                     8C300620
059D 00 4480012E      BSI    I  SSUER    SET ERROR RETURN      SRC    8C300630
059F 00 4480012C      BSI    I  KEY      ENTER PID             SRC    8C300640
05A1 0  0BE5          DC        SN2                                   8C300650
05A2 0  8220          DC        /8220                                 8C300660
                *                                                     8C300670
05A3 00 C400013E      LD     L  BINRY    GET ENTRY                    8C300680
05A5 00 B4000610      CMP    L  KOOFF                                 8C300690
05A7 0  7065          MDX       ERR04                                 8C300692
05A8 0  1000          NOP                                             8C300694
05A9 0  D056          STO       XPID     SAVE                         8C300696
                *                                                     8C300700
05AA 00 44000ABE S2E  BSI    L  RDSK     RD A SKELTON          SRC    8C300710
                *                                                     8C300720
05AC 0  C8DB          LDD       SRST     RESET RESTART                8C300730
05AD 00 DC000000      STD    L  /0000                                 8C300740
                *                                                     8C300750
05AF 00 C4000C17      LD     L  SKI1     GET PID READ                 8C300760
05B1 0  F04E          EOR       XPID     IS IT PID DESIRED            8C300770
05B2 00 4C18058C      BSC    L  SVIX3,+-  YES                          8C300780
                *                                                     8C300790
05B4 0  1010          SLA       16       CLEAR LOR RELOCAT            8C300800
05B5 00 D4000127      STO    L  /0127                                 8C300810
                                                                      8C300820
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0587 0  C003                  LD        BSADI                               8C300830
0588 00 D4000125              STD   L   /0125      RESET BSE ADRS           8C300840
058A 0  70EF                  MDX       S2E        READ NEXT                8C300850
058B 0  0C17            BSA01 DC        /0C17      BASE ADRS                8C300860
                        *                                                   8C300870
05BC 00 67000000        SVIX3 LDX   L3  0          IX 3 = TBL LOC           8C300880
05BE 00 C4000127              LD    L   /0127      GET REL FACTOR           8C300890
05C0 0  8040                  A         BSADR      COMPUTE ADRS             8C300900
05C1 00 D7000603              STD   L3  RLTBL      SAVE                     8C300910
05C3 0  D003                  STD       RLFT+1                              8C300920
05C4 0  7301                  MDX     3 1          INCR IX 3                8C300930
05C5 0  68F7                  STX     3 SVIX3+1    SAVE                     8C300940
05C6 00 C4000000        RLFT  LD    L   0          GET CD NO                8C300950
05C8 00 F400043D              EOR   L   TERM       IS IT A TERM             8C300960
05CA 00 4C180C1A              BSC   L   SKI4,+-    START PROG               8C300970
05CC 0  7000                  MDX       S2E        READ MORE                8C300980
                        *                                                   8C300990
05CD 00 67000000        END1  LDX   L3  0          IX 3 = TBL ADRS          8C301000
05CF 00 C7000604              LD    L3  RLTBL+1    GET ADRS                 8C301010
05D1 0  D001                  STD       RLFT1+1    SAVE                     8C301020
05D2 00 C4000000        RLFT1 LD    L   0          GET CD NO                8C301030
05D4 00 F4000430              EOR   L   TERM       IS IT A TERM             8C301040
05D6 00 4C1805E7              BSC   L   STTRM,+-   YES                      8C301050
05D8 00 C7000604              LD    L3  RLTBL+1    GET ADRS                 8C301060
05DA 00 840007E3              A     L   K0002      ADD 2                    8C301070
05DC 0  D003                  STD       RLFT2+1    SAVE                     8C301080
05DD 00 740105CE              MDX   L   END1+1,1   SET FOR NEXT             8C301090
05DF 00 4C000000        RLFT2 BSC   L   0          GO TO NEXT               8C301100
05E1 00 4480012C        END   BSI   I   KEY        END OF PROGRAM     SRC   8C301110
05E3 0  0BF8                  DC        SM33                                8C301120
05E4 0  0000                  DC        /0000                               8C301130
05E5 0  3008            WAIT8 WAIT      8                                   8C301140
05E6 0  70A9                  MDX       START                               8C301150
05E7 00 C4000440        STTRM LD    L   STBF       GET DISPLACEMENT         8C301160
05E9 00 8400082B              A     L   STBFI      COMPUTE ADRS             8C301170
05EB 0  D001                  STD       *+1        SAVE                     8C301180
05EC 00 65000000              LDX   L1  0          IX 1 = ADRS              8C301190
05EE 00 C4000C17              LD    L   SKI1       GET PID                  8C301200
05F0 0  D100                  STD     1 0          SET                      8C301210
05F1 00 C4000430              LD    L   TERM                                8C301220
05F3 0  D101                  STD     1 1          SET                      8C301230
05F4 00 44000931              BSI   L   PECOR      PUNCH CARDS        SRC   8C301240
05F6 0  1010                  SLA       16         ZERO ACCUM               8C301250
05F7 00 D4000440              STD   L   STBF       CLEAR DISPL              8C301260
05F9 00 65000142              LDX   L1  322                                 8C301270
05FB 00 D4000441        STTR  STD   L   SEIB-1     CLEAR CD BFR             8C301280
05FD 0  71FF                  MDX     1 -1         DECR IX 1                8C301290
05FE 0  70FC                  MDX       STTR       LOOP                     8C301300
05FF 0  70E1                  MDX       END        GO TO END                8C301310
0600 0  0000            XP10  DC        0          PID STORAGE              8C301320
0601 0  0C18            BSADR DC        3096       CONSTANTS                8C301330
0602 0  0418            K1048 DC        1048                                8C301340
0603 0  0000            RLTBL DC        0          TBL OF REL FACTORS       8C301350
0604    0009                  BSS       9                                   8C301360
060D 00 44800132        ERR04 BSI   I   SER                                 8C301362
060F 0  0BD7                  DC        SE002                               8C301364
0610 0  00FF            K00FF DC        /00FF                               8C301366
                        *                                                   8C301370
                        *                                                   8C301380
                        *                                                   8C301390
                        *                  PRINTER I/O ROUTINE              8C301400
                        *                                                   8C301410
                        *                  CALL   BSI   KEY                 8C301420
                        *                         DC    MSGAD               8C301430
                        *                         DC    ID                  8C301440
                        *                                                   8C301450
                        *                  ID  BIT 0  KEYBOARD              8C301460
                                               X0XX   NO CONV               8C301460
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                        *                  X1XX   DEC CONV              8C301482
                        *                  X2XX   HEX CONV              8C301484
                        *                                               8C301490
                        *                                               8C301500
0611 0  0000            KEYE  DC        /0000                           8C301510
0612 0  6941                  STX     1 KEY96+1    SAVE STATUS          8C301520
0613 0  6A42                  STX     2 KEY97+1                         8C301530
0614 0  6843                  STX     3 KEY98+1                         8C301540
0615 00 DC000A4C              STD   L   KAQ                             8C301550
0617 0  2843                  STS       KEY99                           8C301560
                        *                                               8C301570
0618 00 C4800611              LD    I   KEYE       FETCH MESS ADRS      8C301580
061A 00 D4000A46              STD   L   KMSG                            8C301590
061C 00 74010611              MDX   L   KEYE,1     POINT TO ID          8C301600
                        *                                               8C301610
061E 00 65000A47              LDX   L1  KOUT       SET CARRIER RETURN   8C301620
0620 00 C4000AA3              LD    L   KCR                             8C301630
                        *                                               8C301640
0622 0  1808                  SRA       8          CLEAR EBDIC CODE     8C301650
0623 0  1008                  SLA       8                               8C301660
0624 0  D100                  STD     1 0          STORE IN OUTPUT AREA 8C301670
                        *                                               8C301680
0625 00 C4800A46        KEBC2 LD    I   KMSG       CHECK TERMINATOR     8C301690
0627 00 84000A56              A     L   KONE                            8C301700
0629 00 4C18064B              BSC   L   KCHK,+-    BR IF NO MORE MESS   8C301710
********************************************************                8C301720
                        *                                               8C301730
062B 0  6208                  LDX     2 8                               8C301740
062C 00 67000A7A        KEBC3 LDX   L3  KTGLT      CONVERT CHARS TO RTT 8C301750
062E 0  7101                  MDX     1 1                               8C301760
062F 00 C4800A46        KEBC4 LD    I   KMSG       FETCH EBDIC CHARS    8C301770
0631 0  1A00                  SRA     2 0                               8C301780
0632 0  1008                  SLA       8                               8C301790
0633 0  1808                  SRA       8                               8C301800
0634 0  F300                  EOR     3 0                               8C301810
0635 0  D100                  STD     1 0                               8C301820
0636 0  1008                  SLA       8                               8C301830
0637 0  7301                  MDX     3 1                               8C301840
0638 00 4C20062F              BSC   L   KEBC4,Z    BR IF NOT THE CHAR   8C301850
                        *                                               8C301860
063A 0  7200                  MDX     2 0          SKIP IF 2 CHARS CNVT 8C301870
063B 0  700D                  MDX       KEBC6                           8C301880
                        *                                               8C301890
063C 00 C4000A56              LD    L   KONE       SET TERMINATOR       8C301900
063E 0  8100                  A       1 0                               8C301910
063F 0  D100                  STD     1 0                               8C301920
0640 00 65000A47              LDX   L1  KOUT       GO PRINT CHARS       8C301930
0642 00 44000792              BSI   L   KTYP                            8C301940
                        *                                               8C301950
0644 00 65000A46              LDX   L1  KOUT-1                          8C301960
0646 00 74010A46              MDX   L   KMSG,1     POINT TO NEXT WORD   8C301970
0648 0  70DC                  MDX       KEBC2                           8C301980
                        *                                               8C301990
0649 0  6200            KEBC6 LDX     2 0          CONVERT SECOND CHAR  8C302000
064A 0  70E1                  MDX       KEBC3                           8C302010
********************************************************                8C302020
                        *                                               8C302030
                        *                                               8C302040
064B 00 65000AA3        KCHK  LDX   L1  KCR                             8C302050
064D 00 44000792              BSI   L   KTYP       DO CAR RET     SRC   8C302060
064F 00 C4800611              LD    I   KEYE                            8C302070
0651 00 4C280660              BSC   L   KFRM,+Z    BR IF KBD ENTRY      8C302080
********************************************************                8C302090
                        *                                               8C302100
0653 00 65000000        KEY96 LDX   L1  /0000      RESTORE STATUS       8C302110
0655 00 66000000        KEY97 LDX   L2  /0000                           8C302120
0657 00 67000000        KEY98 LDX   L3  /0000                           8C302130
0659 00 CC000A4C              LDD   L   KAQ                             8C302140
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0658 0  2000       KEY99 LDS    0                                    8C302150
                         *                                          8C302160
065C 00 74010611         MDX  L  KEYE,1                             8C302170
065E 00 4C800611         BSC  I  KEYE       RETURN EXIT             8C302180
                         ******************************************* 8C302190
                         ******************************************* 8C302200
                         *                                          8C302210
                         *                                          8C302220
0660 0  1090       KFRM  SLT    16         FETCH FORM NUMBER       8C302230
0661 00 C4800611         LO   I  KEYE                               8C302240
0663 0  1004             SLA     4                                  8C302250
0664 0  18CC             RTE     12                                 8C302260
0665 00 D4000753         STO  L  KEYFM      SAVE FORM NO            8C302270
0667 0  1804             SRA     4                                  8C302280
0668 0  1084             SLT     4                                  8C302290
0669 00 04000754         STO  L  KEYND      SAVE CHAR/WD COUNT      8C302300
                         *                                          8C302310
                         *                                          8C302320
066B 00 44800134   KEYOG BSI  1  SKIN1      SET KEYIN TO FFFF   SRC 8C302330
                         *                                          8C302340
066D 00 6F0001DE         STX  L3 KIWC       RESET WD CT             8C302350
                         *                                          8C302360
066F 00 670001DF         LDX  L3 KEYIN      RESET READ AREA         8C302370
                         ******************************************* 8C302380
0671 00 6F000A54   KEYO  STX  L3 KREO                               8C302390
0673 00 4400076F         BSI  L  KNBY       WAIT FOR NOT BUSY       8C302400
                         *                                          8C302410
0675 00 0C000A52   KEY1  XIO  L  KPCD       SET KEYBOARD PROCEED    8C302420
                         *                                          8C302430
0677 00 0C000A44   KEY2  XIO  L  KSNS       SENSE STATUS            8C302440
0679 0  1001             SLA     1                                  8C302450
067A 00 4C280680         BSC  L  KEY3,+Z    GO READ KEYBOARD        8C302460
                         *                                          8C302470
067C 0  1005             SLA     5                                  8C302480
067D 00 4C100675         BSC  L  KEY1,-     BR IF NOT PROCEED       8C302490
067F 0  70F7             MDX     KEY2                               8C302500
                         *                                          8C302510
0680 00 0C000A54   KEY3  XIO  L  KREO       READ KEYBOARD           8C302520
                         *                                          8C302530
0682 0  610B       KFMS  LDX    1 11        CHECK FOR DEC OR SPC    8C302540
0683 0  C300       KFMS1 LO     3 KRED-KRED FETCH CHAR READ         8C302550
0684 00 F5000A5D         EOR  L1 KECOD-1                            8C302560
0686 00 4C1806DD         BSC  L  KOEC,+-    BR IF DEC OR SPACE      8C302570
                         *                                          8C302580
0688 0  71FF             MDX  1 -1                                  8C302590
0689 0  70F9             MDX     KFMS1                              8C302600
                         *                                          8C302610
068A 00 C4000753         LD   L  KEYFM      CHECK FOR FORM          8C302620
068C 00 F4000A56         EOR  L  KONE                               8C302630
068E 00 4C1806A7         BSC  L  KFM0,+-    BRANCH IF FORM 1        8C302640
                         ******************************************* 8C302650
0690 0  6106       KFM2  LDX    1 6         CHECK FOR HEX           8C302660
0691 0  C300       KFM21 LD     3 KRED-KRED FETCH CHAR READ         8C302670
0692 00 F5000A68         EOR  L1 KECAD-1                            8C302680
0694 00 4C1806E0         BSC  L  KHEX,+-    BR IF ALPHA             8C302690
                         *                                          8C302700
0696 0  71FF             MDX  1 -1                                  8C302710
0697 0  70F9             MDX     KFM21                              8C302720
0698 0  C300             LD   3 KRED-KRED FETCH CHAR READ           8C302730
0699 00 F4000A5B         EOR  L  KECPD                              8C302731
069B 00 4C2006A7         BSC  L  KFM0,Z     BR IF NOT PERIOD        8C302732
069D 0  C3FC             LD   3 -4          A PLUS OR MINUS         8C302733
069E 0  6201             LDX  2 1                                   8C302734
069F 0  1240             SLCA 2 0                                   8C302735
06A0 00 F4000A49         EOR  L  K8000                              8C302736
06A2 00 44200757         BSI  L  KERR,Z     BR IF NOT + OR -        8C302737
06A4 00 C4000A8F         LD   L  KTPLT                              8C302738
06A6 0  7022             MDX     KPNE                               8C302739
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                         *                                          8C302740
                         ******************************************* 8C302750
06A7 0  6108       KFM0  LOX    1 8         CHECK UC SP CHRS        8C302760
06A8 0  C300       KFM01 LD     3 0         GET CHR READ            8C302770
06A9 00 F5000A56         EOR  L1 KN-1        CK AGAINST TBL          8C302780
06AB 00 4C1806D2         BSC  L  KMOX,+-    CHAR FOUND              8C302790
06AD 0  71FF             MDX  1 -1          DECR IX 1               8C302800
06AE 0  70F9             MDX     KFM01      LOOP                    8C302810
                         *                                          8C302820
06AF 0  6107             LDX  1 7           CK LC SP CHRS           8C302830
06B0 0  C300       KFM02 LD     3 0         GET CHR READ            8C302840
06B1 00 F5000A71         EOR  L1 KAL-1       CK AGAINST TBL          8C302850
06B3 00 4C18060B         BSC  L  KMPX,+-    CHARACTER FOUND         8C302860
06B5 0  71FF             MDX  1 -1          DECR IX 1               8C302870
06B6 0  70F9             MDX     KFM02      LOOP                    8C302880
06B7 0  C300             LD   3 0           GET CHR READ            8C302890
06B8 00 F4000A4B         EOR  L  KL                                 8C302900
06BA 00 442006F6         BSI  L  KSPC,Z                             8C302910
                         *                                          8C302920
06BC 0  6201             LDX  2 1                                   8C302930
06BD 0  C3FA             LD   3 -6                                  8C302940
06BE 0  1002             SLA  2                                     8C302950
06BF 0  1240             SLCA 2 0                                   8C302960
06C0 00 F4000BA9         EOR  L  K8000                              8C302970
06C2 00 44200757         BSI  L  KERR,Z     BR IF NOT 1 OR ZERO     8C302980
                         *                                          8C302990
06C4 0  C3FA             LD   3 -6                                  8C303000
06C5 0  1802             SRA  2                                     8C303010
06C6 0  D3FA             STO  3 -6                                  8C303020
06C7 00 C4000A7F         LO   L  KLRT                               8C303030
06C9 00 EC000A56   KPNE  OR   L  KONE                               8C303040
06CB 00 65000A47         LDX  L1 KOUT                               8C303050
06CD 0  D100             STO  1 0                                   8C303060
06CE 00 44000792         BSI  L  KTYP                               8C303070
06D0 00 4C000671         BSC  L  KEYO       BRANCH                  8C303080
                         *                                          8C303090
06D2 0  C30C       KMOX  LD     3 0         FETCH CHAR              8C303091
06D3 00 F4000A5C         EOR  L  KECPD+1                            8C303092
06D5 00 4C2006DB         BSC  L  KMPX,Z     BR IF NOT + SIGN        8C303093
06D7 0  C300             LD   3 0           MAKE + = /8000          8C303094
06D8 0  180C             SRA  12                                    8C303095
06D9 0  100C             SLA  12                                    8C303096
06DA 0  D300             STO  3 0                                   8C303097
06DB 0  7111             MDX  1 KN-KECGD    ADJ IX 1                8C303100
06DC 0  7001             MDX     KDEC1                              8C303110
                         *                                          8C303120
                         ******************************************* 8C303130
                         *                                          8C303140
06DD 0  7118       KOEC  MDX  1 KECOD-KECGD      CORCT XR1           8C303150
                         *                                          8C303160
06DE 0  4003       KOEC1 BSI     KSTO       GO STORE + PRT      SRC 8C303170
                         *                                          8C303180
06DF 0  7091             MDX     KEYO               RETURN FOR NEXT 8C303190
                         *                                          8C303200
                         *                                          8C303210
06E0 0  7123       KHEX  MDX  1 KECAD-KECGD      GO PRINT A - F      8C303220
06E1 0  70FC             MDX     KDEC1                              8C303230
                         ******************************************* 8C303240
                         *                                          8C303250
                                                STORE AND PRINT RTN 8C303260
06E2 0  0000       KSTO  DC      /0000                              8C303270
06E3 0  C300             LD   3 0                                   8C303280
06E4 0  EBFF             OR   3 -1                                  8C303290
06E5 0  1804             SRA  4                                     8C303300
06E6 00 4C9806E2         BSC  1  KSTO,+-    BR IF SECOND SPACE      8C303310
                         *                                          8C303320
06E8 00 C5000A79         LD   L1 KTGLT-1    FETCH TYPR CHAR         8C303330
06EA 00 EC000A56         OR   L  KONE                               8C303340
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06EC 00 65000A47          LDX  L1 KOUT                                  8C303350
06EE 0  0100              STO   1 0                                     8C303360
06EF 00 44000792          BSI  L  KTYP       TYPE CHARACTER             8C303370
                     *                                                  8C303380
                     *                       UPDATE KEYBOARD BUF        8C303390
06F1 00 740101DE          MDX  L  KIWC,1                                8C303400
06F3 0  7301              MDX   3 1                                     8C303410
                     *                                                  8C303420
06F4 00 4C8006E2          BSC  1  KSTO       RETURN TO USER             8C303430
                     ********************************************       8C303440
                     *                       SPECIAL CHAR CHECK         8C303450
06F6 0  0000         KSPC DC       /0000                               8C303460
                     *                                                  8C303470
06F7 0  C300              LD    3 0         FETCH KEY CHARACTER        8C303480
06F8 00 F4000A79          EOR  L  KCMA                                  8C303492
06FA 00 4C200712          BSC  L  KSPC5,Z    BR IF NOT A  COMMA         8C303500
                     *                                                  8C303510
06FC 00 C40001DE          LD   L  K1WC                                  8C303520
06FE 00 940007E3          S    L  K0002                                 8C303530
0700 00 44280757          BSI  L  KERR,+Z    BR IF COMMA TOO SOON       8C303540
                     *                                                  8C303550
0702 0  C3FF              LD    3 -1         FETCH LAST ENTRY           8C303560
0703 0  1804              SRA     4                                     8C303570
0704 00 4C180709          BSC  L  KSPC2,+-   BR IF SPACE LAST           8C303580
0706 00 740101DE          MDX  L  KIWC,+1                               8C303590
0708 0  7301              MDX   3 +1                                    8C303600
0709 00 C4000A56     KSPC2 LD   L  KONE                                 8C303610
070B 0  03FF              STO   3 -1         SET FIELD PROTECT MK       8C303620
                     *                                                  8C303630
070C 00 6500072A          LDX  L1 KCOMA                                 8C303640
070E 00 44000792          BSI  L  KTYP       GO PRINT + OR-             8C303650
                     *                                                  8C303660
0710 00 64000671          LDX  L  KEYO       RETURN FOR MORE CHR        8C303670
                     *                                                  8C303680
                     ********************************************       8C303690
0712 0  C300         KSPC5 LD    3 0         FETCH KEY CHARACTER        8C303700
0713 00 F4000A70          EOR  L  KERSE                                 8C303710
0715 00 4C20072D          BSC  L  KSPC9,Z    BR IF NOT ERASE CHAR       8C303720
                     *                                                  8C303730
0717 00 C40001DE          LD   L  KIWC                                  8C303740
0719 00 4C080671          BSC  L  KEYO,+     BR IF WORD COUNT ZERO      8C303750
                     *                                                  8C303760
071B 0  C3FF              LD    3 -1         CHECK PROTECT BIT          8C303770
071C 00 4C040671          BSC  L  KEYO,E     BR IF LAST WORD PROTD      8C303780
071E 0  1801              SRA     1                                     8C303790
071F 00 4C040725          BSC  L  KSPC6,E    DO BKSP OVER PERIOD        8C303800
0721 0  73FF              MDX   3 -1         DECREASE WORD COUNT        8C303810
0722 00 74FF010E          MDX  L  KIWC,-1                               8C303820
0724 0  1000              NOP                                           8C303830
0725 00 6500072C     KSPC6 LDX  L1 KBKSP                                8C303840
0727 0  406A              BSI     KTYP       DO A BACKSPACE        SRC   8C303850
                     *                                                  8C303860
0728 00 4C000671          BSC  L  KEYO       RETURN                     8C303870
                     ********************************************       8C303880
072A 0  8000         KCOMA DC       /8000    COMMA RESPONSE             8C303890
072B 0  8101              DC       /8101                               8C303900
072C 0  1101         KBKSP DC       /1101                               8C303910
                     *                                                  8C303920
072D 0  C300         KSPC9 LD    3 0         FETCH KEY CHAR             8C303930
072E 00 F4000A6F          EOR  L  KRENT                                 8C303940
0730 00 44180757          BSI  L  KERR,+-    BR IF ERASE FIELD          8C303950
                     *                                                  8C303960
0732 0  C300              LD    3 KRED-KRED  FETCH CHAR READ            8C303970
0733 00 F4000A71          EOR  L  KENOK                                 8C303980
0735 00 4C200671          BSC  L  KEYO,Z     BR IF NOT EOF KEY          8C303990
                     *                                                  8C304000
0737 00 C40001DE          LD   L  KIWC       FETCH WORD COUNT           8C304010
0739 0  901A              S       KEYNO                                 8C304020
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073A 00 44280757          BSI  L  KERR,+Z    TOO FEW ENTRIES            8C304030
073C 00 65800IDE          LDX  I1 KIWC       CLEAR FIELD PROT BIT       8C304040
073E 00 C5000IDE     KSPCA LD   L1 KIWC                                 8C304050
0740 0  1804              SRA     4                                     8C304060
0741 0  1004              SLA     4                                     8C304070
0742 00 050001DE          STO  L1 KIWC                                  8C304080
0744 0  71FF              MDX   1 -1                                    8C304090
0745 0  70F8              MDX     KSPCA                                 8C304100
                     *                                                  8C304110
                     *                                                  8C304120
0746 0  C3FF              LD    3 -1         REMOVE SP BEFORE           8C304130
                     *                       TERMINATE                  8C304140
0747 0  1804              SRA     4                                     8C304150
0748 00 4C20074F          BSC  L  KSPCE,Z    BR IF NO SPACE THERE       8C304160
074A 0  73FF              MDX   3 -1         DECREMENT WORD COUNT        8C304170
0748 00 74FF01DE          MDX  L  K1WC,-1                               8C304180
0740 0  7001              MDX     KSPCE                                 8C304190
074E 0  4008              BSI     KERR                                  8C304200
074F 0  C01E         KSPCE LD     KNEG       SET TERMINATION            8C304210
0750 0  0300              STO   3 0                                     8C304220
0751 00 44000ACA          BSI  L  LDOIT      LET LLOYD DO IT            8C304230
0753 0  0000         KEYFM DC       /0000    FORM NUMBER                8C304240
0754 0  0000         KEYND DC       /0000    CHARS / WORD               8C304250
0755 00 4C000653     EXIT  BSC  L  KEY96                                8C304260
                     ********************************************       8C304270
                     *                                                  8C304280
                     *                                                  8C304290
0757 0  0000         KERR  DC       /0000                               8C304300
0758 00 65000AA4          LDX  L1 KFELD      PRINT FIELD CANCELLO       8C304310
075A 0  4037              BSI     KTYP       TYPE                  SRC  8C304320
                     *                                                  8C304330
075B 0  7301              MDX   3 1                                     8C304340
075C 00 740101DE          MDX  L  K1WC,1                                8C304350
075E 0  61FF              IOX   1 -1                                    8C304360
075F 0  C3FF         KERR1 LD    3 -1         ERASE TO FIELD MARK        8C304370
0760 00 4C040671          BSC  L  KEYO,E     BR IF FIELD MARK           8C304380
                     *                                                  8C304390
0762 0  C008              LD      KNEG                                  8C304400
0763 0  D300              STO   3 0                                     8C304410
0764 0  73FF              MDX   3 -1         DECREMENT WORD COUNT        8C304420
0765 00 74FF01DE          MDX  L  K1WC,-1                               8C304430
0767 0  70F7              MDX     KERR1                                 8C304440
                     *                                                  8C304450
0768 00 C40001DE          LD   L  K1WC                                  8C304460
076A 00 4C100671          BSC  L  KEYO,-                                8C304462
076C 00 4C000668          BSC  L  KEYOG                                 8C304464
076E 0  FFFF         KNEG  DC       -1         CONSTANT MINUS ONE         8C304470
                     ********************************************       8C304480
                     *                                                  8C304490
                     *                                                  8C304500
                     *                       TYPR NOT BUSY RTN          8C304510
076F 0  0000         KNBY  DC       /0000                               8C304520
0770 0  6A1B              STX   2 KNBY5+1                               8C304530
0771 00 6600000A          LDX  L2 10         SET TIME COUNTER           8C304540
0773 00 6E000791          STX  L2 KTIME                                 8C304550
0775 00 66007FFF     KNBY0 LDX  L2 /7FFF                                8C304560
0777 00 0C000A44     KNBY1 XIO  L  KSNS       CHECK BUSY                 8C304570
0779 0  1004              SLA     4                                     8C304580
077A 00 4C10078B          BSC  L  KNBY5,-    BR IF NOT BUSY             8C304590
077C 0  72FF              MDX   2 -1                                    8C304600
077D 0  70F9              MDX     KNBY1      CHECK AGAIN                8C304610
077E 00 74FF0791          MDX  L  KTIME,-1   DECREMENT TIMER             8C304620
0780 0  70F4              MDX     KNBY0                                 8C304630
                     *                                                  8C304640
0781 00 66000787          LDX  L2 KNBY4      TYPR HUNG UP BUSY          8C304650
0783 00 6E000003          STX  L2 3                                     8C304660
0785 0  3002         WAIT2 WAIT    2          1816 HUNG UP BUSY          8C304670
0786 0  70EA              MDX     KNBY+2                                8C304680
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                      *                                                 8C304690
0787 00 6600012C      KNBY4 LDX  L2 300       RESTORE RESTART           8C304700
0789 00 6E000003            STX  L2 3                                   8C304710
                      *                                                 8C304720
078B 00 66000000      KNBY5 LDX  L2 /0000     EXIT                      8C304730
078D 00 DC000A4E            XIO  L  KROY      RESET                     8C304740
078F 00 4C80076F            BSC  I  KNBY                                8C304750
0791 0  0000          KTIME DC      /0000     TIME COUNTER              8C304760
                      ******************************************        8C304770
                      *                                                 8C304780
                      *                                                 8C304790
                      *                                         *       8C304800
                      *                       PRINTER OUTPUT RTN        8C304810
                      *                       XR1 = ADRS OF MESS        8C304820
                      *                                                 8C304830
0792 0  0000          KTYP  DC      /0000                               8C304840
0793 00 6D000A50      KTYP1 STX  L1 KPRT      SAVE PRINTING ADDR        8C304850
                      *                                                 8C304860
0795 0  4009                BSI     KNBY      WAIT OFR NOT BUSY         8C304870
                      *                                                 8C304880
0796 00 0C000A4E      KTYP5 XIO  L  KROY      CHECK READY               8C304890
0798 0  1005                SLA     5                                   8C304900
0799 00 4C10079D            BSC  L  KTYP6,-   BR IF READY               8C304910
079B 0  3001          WAIT1 WAIT    1         PRINTER OUT OF FORMS      8C304920
                      *                                                 8C304930
079C 0  70F9                MDX     KTYP5                               8C304940
                      *                                                 8C304950
079D 00 0C000A50      KTYP6 XIO  L  KPRT      OUTPUT ONE CHAR           8C304960
079F 0  C100                LD   1  0                                   8C304970
07A0 00 4C840792            BSC  I  KTYP,E    EXIT IF MSG PRIM          8C304980
                      *                                                 8C304990
07A2 0  7101                MDX  1  1                                   8C305000
07A3 0  70EF                MDX     KTYP1                               8C305010
07A4 0  0000          CKYNE DC      0                         SE        8C305020
07A5 00 C40001DF            LD   L  KEYIN     GET ENTRY                 8C305030
07A7 0  F018                EOR     YES       IS IT Y LC                8C305040
07A8 00 4C18078E            BSC  L  CKYNO,+-  YES                       8C305050
07AA 00 C40001DF            LD   L  KEYIN     GET ENTRY                 8C305060
07AC 0  F014                EOR     YES1      IS IT Y UC                8C305070
07AD 00 4C18078E            BSC  L  CKYNO,+-  YES                       8C305080
07AF 00 C40001DF            LD   L  KEYIN     GET ENTRY                 8C305090
07B1 0  F010                EOR     NO        IS IT N LC                8C305100
07B2 00 4C18078C            BSC  L  CKYN1,+-  YES                       8C305110
07B4 00 C40001DF            LD   L  KEYIN     GET ENTRY                 8C305120
07B6 0  F00C                EOR     NO1       IS IT N UC                8C305130
07B7 00 4C18078C            BSC  L  CKYN1,+-  YES                       8C305140
                      *                                                 8C305150
07B9 00 44800132            BSI  I  SER       NOT Y OR N      SRC       8C305160
07BB 0  0882                DC      PCKBE                               8C305170
                      *                                                 8C305180
07BC 00 740107A4      CKYN1 MDX  L  CKYNE,1   INCR RETURN               8C305190
07BE 00 4C8007A4      CKYNO BSC  I  CKYNE     EXIT            SX        8C305200
                      *                                                 8C305210
07C0 0  2020          YES   DC      /2020     LOWER CASE Y              8C305220
07C1 0  8060          YES1  DC      /8060     UPPER CASE Y              8C305230
07C2 0  4100          NO    DC      /4100     LOWER CASE N              8C305240
07C3 0  8120          NO1   DC      /8120     UPPER CASE N              8C305250
                      *                                                 8C305260
                      *                                                 8C305270
                      *  SET UP RETURN ON ERROR                         8C305280
07C4 0  0000          SSUEE DC      /0000                               8C305290
07C5 0  CDFE                LD      SSUEE                               8C305300
07C6 0  901C                S       K0002                               8C305310
07C7 00 D4000442            STO  L  SRTRY                               8C305320
07C9 00 4C8007C4            BSC  I  SSUEE                               8C305330
07C4                  SSEUR EQU     SSUEE                               8C305340
                      *                  CHECK IF INTERRUPT LEVEL       8C305350
                      *                  IS TO GREAT                    8C305360
```



```
07CB 0  0000          SILE  DC                                          8C305370
07CC 00 C400013E            LD   L  BINRY                               8C305380
07CE 0  1008                SLA     8                                   8C305390
07CF 0  8008                CMP     S1700                               8C305400
07D0 0  7002                MDX     SILER     GREATER ERROR             8C305410
07D1 0  7004                MDX     SIL1                                8C305420
07D2 0  7003                MDX     SIL1                                8C305430
                      *                                                 8C305440
07D3 00 44800132      SILER BSI  I  SER                                 8C305450
07D5 0  08D7                DC      SE002                               8C305460
                      *                                                 8C305470
07D6 00 4C8007CB      SIL1  BSC  I  SILE                                8C305480
                      *                                                 8C305490
07D8 0  1700          S1700 DC      /1700                               8C305500
                      *                                                 8C305510
                      *             CHECK IF ILSW IS VALID              8C305520
                      *                                                 8C305530
07D9 0  0000          SILSE DC      /0000                               8C305540
07DA 00 C400013E            LD   L  BINRY                               8C305550
07DC 0  1004                SLA     4                                   8C305560
07DD 0  8004                CMP     S00F0                               8C305570
07DE 0  70F4                MDX     SILER       ERROR                   8C305580
07DF 0  1000                NOP     0                                   8C305590
                      *                                                 8C305600
                      *                                                 8C305610
07E0 00 4C8007D9      SIA   BSC  I  SILSE                               8C305620
                      *                                                 8C305630
07E2 0  00F0          S00F0 DC      /00F0                               8C305640
07E3 0  0002          K0002 DC      2                                   8C305650
                      *                                                 8C305660
                      *             CHECK CHANNEL VALUE                 8C305670
                      *                                                 8C305680
07E4 0  0000          SCHE  DC      /0000                               8C305690
07E5 00 C400013E            LD   L  BINRY                               8C305700
07E7 0  800C                CMP     S0005                               8C305710
07E8 0  7002                MDX     SCHER                               8C305720
07E9 0  7005                MDX     SCH1                                8C305730
07EA 0  7004                MDX     SCH1                                8C305740
                      *                                                 8C305750
07EB 0  F007          SCHER EOR     S000F                               8C305760
07EC 00 4C1807EF            BSC  L  SCH1,+-                             8C305770
07EE 0  70E4                MDX     SILER       ERROR                   8C305780
                      *                                                 8C305790
07EF 00 C400013E      SCH1  LD   L  BINRY                               8C305800
07F1 00 4C8007E4            BSC  I  SCHE                                8C305810
07F3 0  000F          S000F DC      /000F                               8C305820
                      *                                                 8C305830
07F4 0  0008          S0008 DC      /0008                               8C305840
07F5 0  0000          SERE  DC      /0000                               8C305850
07F6 00 C48007F5            LD   I  SERE        FETCH ERROR ADDRESS     8C305860
07F8 0  0002                STO     SER1                                8C305870
                      *                                                 8C305880
07F9 00 4480012C            BSI  I  KEY                                 8C305890
07FB 0  0000          SER1  DC      /0000       ADDRESS                 8C305900
07FC 0  0000                DC      /0000       ID                      8C305910
                      *                                                 8C305920
07FD 00 4C800441            BSC  I  SRTRY                               8C305930
                      *                                                 8C305940
                      *             SET UP ROUTINE                      8C305950
                      *                X2= CARD NUMBER                  8C305960
                      *                                                 8C305970
07FF 0  0000          SECSE DC      0                           SE      8C305980
0800 00 C48007FF            LD   I  SECSE       GET MSG ADRS            8C305990
0802 0  0024                STO     SIWB        SAVE                    8C306000
0803 0  6A24          SE1   STX  2  SECB        SET CD NO               8C306010
0804 0  6924                STX  1  CPID        SET PID                 8C306020
0805 0  6B24                STX  3  NDEN        SET NO OF ENTRIES       8C306030
0806 0  C024                LD      STBF1       GET EDIT IMAGE ADRS     8C306040
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0807 00 84000440          A    L  STBF
0809 0  D003              STD      SE2+1          SET
080A 00 65800827          LDX  I1  SIWB           IX 1 = MSG AORS
080C 00 67000000  SE2     LDX  L3  0              IX 3 = STARTING AORS
080E 00 6680082A          LOX  I2  NOEN           IX 2 = NO ENTRIES
0810 0  C018              LD       CPID           GET PID
0811 0  D300              STD   3  0              SET
0812 0  C015              LO       SECB           GET CD NO
0813 0  D301              STD   3  1              SET
0814 0  C015              LD       NOEN           GET NO ENTRIES
0815 0  D302              STO   3  2              SET
0816 0  7303              MDX   3  3              INCR IX 3
0817 0  C100      SE3     LD    1  0              GET AN ENTRY
0818 0  D300              STO   3  0              SET
0819 0  7101              MDX   1  1              INCR MSG ADRS
081A 0  7301              MDX   3  1              INCR BFR AORS
081B 0  72FF              MDX   2  -1             OECR NO ENTRIES
081C 0  70FA              MDX      SE3            LOOP
081D 00 C4000440          LD    L  STBF
081F 0  800C              A        K0003          ADD 3
0820 0  8009              A        NOEN           AOD NO ENTRIES
0821 00 D4000440          STO   L  STBF
0823 00 740107FF          MDX   L  SECSE,1        INCR RETURN
0825 00 4C8007FF          BSC   I  SECSE          EXIT                    SX
                  *
0827 0  0000      SIW8    DC       0              MSG ADRS
0828 0  0000      SECB    DC       0              CARD NO
0829 0  0000      CPID    DC       0              PID
082A 0  0000      NOEN    DC       0              NO ENTRIES
082B 0  0442      STBF1   DC       SEIB           CD BFR ADRS
082C 0  0003      K0003   OC       3              CONSTANT 3
                  ********************************************
082D 0  0000      KIN1    OC       0                              SE
082E 00 67000258          LOX  L3  600            SET IXING
0830 00 C400043D          LD   L   TERM           GET FFFF
0832 00 D700010E  SKINA   STO  L3  KIWC           SET KEYIN AREA
0834 0  73FF              MDX   3  -1             DECR IX 3
0835 0  70FC              MDX      SKINA          LOOP
0836 00 4C80082D          BSC   I  KIN1           EXIT                    SX
                  ********************************************
                  *
0838 0  0000      KINO    DC       0              SE
0839 00 67000258          LDX  L3  600            SET IXING
083B 0  1010              SLA      16             CLEAR ACCUM
083C 00 D700010E  SKINB   STO  L3  KIWC           CLEAR KEYIN AREA
083E 0  73FF              MDX   3  -1             DECR IX 3
083F 0  70FC              MDX      SKINB          LOOP
0840 00 4C800838          BSC   I  KINO           EXIT                    SX
                  *                       OEC KEYBOARD TO BINARY RT
                  *
0842 0  0000      DKYB    DC       0
0843 0  D862              STD      PHKX1          SAVE A + Q
0844 0  C0FD              LD       DKYB
0845 0  D005              STO      HKYB
0846 00 040008AF          STD   L  PHDSW          SET HEX-DEC SW = DEC
0848 00 C40008F7          LD    L  PDKX1          CONSTANT 10
084A 0  7005              MDX      PHKYD          ENTER COMMON SECTION
                  *
                  *
                  *                       HEX KEYBOARD TO BINARY RT
                  *
0848 0  0000      HKYB    DC       0
084C 0  D859              STD      PHKX1          SAVE A + Q
084D 0  C05F              LD       PHKX7          CONSTANT ZERO
084E 0  D060              STD      PHDSW          SET HEX-DEC SW = HEX
084F 0  C05E              LD       PHKX8
0850 0  D01F      PHKYD   STO      PHKYC          SET CONV CK
0851 0  284F              STS      PHKYS          SAVE STATUS
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8C306050 8C306060 8C306070 8C306080 8C306090 8C306100 8C306110 8C306120 8C306130 8C306140 8C306150 8C306160 8C306170 8C306180 8C306190 8C306200 8C306210 8C306220 8C306230 8C306240 8C306250 8C306260 8C306270 8C306280 8C306290 8C306300 8C306310 8C306320 8C306330 8C306340 8C306350 8C306360 8C306370 8C306380 8C306390 8C306400 8C306410 8C306420 8C306430 8C306440 8C306450 8C306460 8C306470 8C306480 8C306490 8C306500 8C306510 8C306520 8C306530 8C306540 8C306550 8C306560 8C306570 8C306580 8C306590 8C306600 8C306610 8C306620 8C306630 8C306640 8C306650 8C306660 8C306670 8C306680 8C306690 8C306700 8C306710 8C306720


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0852 0  6949              STX    1 PHKY6+1    SAVE X1
0853 0  6A4A              STX    2 PHKY7+1    SAVE X2
0854 0  6B4B              STX    3 PHKY8+1    SAVE X3
0855 00 6780084B          LOX   I3 HKYB
0857 00 C7000000          LD    L3 0
0859 0  D04E              STO      PHKX2      SAVE CHAR/WORD
085A 00 C7800001          LD    I3 I          GET AOOR OF OISP
085C 0  804C              A        PHKX3      COMPUTE START AOOR
085D 0  D04C              STO      PHKX4
                  *
                  *                       INITIALIZE BINRY BUFFER
                  *
085E 0  1810              SRA      16
085F 00 D400013D          STO   L  BWC        RESET WORD COUNT
                  *
                  *                       CONVERT NUMBER TO HEX
                  *                       * AND STORE IN BINARY BUF
                  *
0861 00 6680013D  PHKY5   LDX   I2 BWC        SET X2 TO NEXT
0863 00 7600013D          MDX   L2 BINRY-1    * AVAILABLE SPACE -1
0865 0  6A0C              STX    2 PHKY1+1
0866 0  6A16              STX    2 PHKY3+1
0867 00 658008A8          LDX   I1 PHKX2      SET X1 TO STARTING
0869 00 758008AA          MDX   I1 PHKX4      * ADDR + NUM CHAR/WD
086B 00 678008A8          LDX   I3 PHKX2      SET X3 TO CHAR/WD
086D 0  C100      PHKY2   LD     1 0          GET NUMBER
086E 00 44000900          BSI   L  PCKB       CONVERT TO BINARY
0870 0  0010      PHKYC   OC       16         LIM CK = 16 OR 10
0871 00 D7000000  PHKY1   STO   L3 0          PLACE IN BINRY BUFF
0873 0  71FF              MDX    1 -1
0874 0  73FF              MDX    3 -1         SKIP WHEN DONE
0875 0  70F7              MDX      PHKY2
0876 00 740008AF          MDX   L  PHDSW,0    CK HEX-DEC SW
0878 0  7037              MDX      PDKY1      BRANCH TO DEC RT
                  *
                  *                       PACK BINARY
                  *
0879 00 678008A8          LOX   I3 PHKX2      SET X3 TO CHAR/WD
087B 0  10A0              SLT      32
087C 00 C7000000  PHKY3   LD    L3 0
087E 0  1884              SRT      4
087F 0  73FF              MDX    3 -1
0880 0  70FB              MDX      PHKY3
0881 0  63FC              LDX    3 -4         RIGHT JUSTIFY
0882 00 778008A8          MDX   I3 PHKX2
0884 0  1884      PHKY4   SRT      4
0885 0  7300              MDX    3 0
0886 0  7001              MDX      PHKY9
0887 0  7002              MDX      PHKY9+2
0888 0  7301      PHKY9   MDX    3 1
0889 0  70FA              MDX      PHKY4
088A 0  18D0              RTE      16
088B 00 D6000001  PHKYF   STO   L2 I          PLACE IN BINRY BUFF
088D 00 74010130          MDX   L  BWC,1      BUMP WORD COUNT
                  *
                  *                       BUMP TO NEXT KEYIN FIELD
                  *
088F 0  C018      PHKYH   LD       PHKX2      GET CHAR/WD
0890 0  801A              A        PHKX5      ADD ONE FOR SPACE
0891 0  8018              A        PHKX4
0892 0  D017              STO      PHKX4
0893 00 678008AA          LDX   I3 PHKX4
0895 0  C300              LD     3 0
0896 0  F015              EOR      PHKX6      CK FOR TERMINATOR
0897 0  4820              BSC      Z          SKIP IF FOUND
0898 0  70C8              MDX      PHKY5      GET NEXT NUMBER
                  *
                  *                       EXIT FROM RT
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8C306730 8C306740 8C306750 8C306760 8C306770 8C306780 8C306790 8C306800 8C306810 8C306820 8C306830 8C306840 8C306850 8C306860 8C306870 8C306880 8C306890 8C306900 8C306910 8C306920 8C306930 8C306940 8C306950 8C306960 8C306970 8C306980 8C306990 8C307000 8C307010 8C307020 8C307030 8C307040 8C307050 8C307060 8C307070 8C307080 8C307090 8C307100 8C307110 8C307120 8C307130 8C307140 8C307150 8C307160 8C307170 8C307180 8C307190 8C307200 8C307210 8C307220 8C307230 8C307240 8C307250 8C307260 8C307270 8C307280 8C307290 8C307300 8C307310 8C307320 8C307330 8C307340 8C307350 8C307360 8C307370 8C307380 8C307390 8C307400

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0899 00 74D2084B          *
                          *       MDX   L  HKYB,2
089B 00 6500D00D          PHKY6 LDX   L1 D              RESTORE REGS
089D 00 66000000          PHKY7 LDX   L2 0
089F 00 67000900          PHKY8 LDX   L3 0
08A1 D  2D00              PHKY9 LDS     0
08A2 0  C8D3                    LDD     PHKX1
08A3 00 4C80084B                BSC   I HKYB          EXIT FROM SUBRT
                          *
                          *
08A6    D000              PHKX1 BSS   E 0
08A6    D002              PHKX2 DC      2               SAVE A + Q
08A8 D  D000              PHKX3 DC      0               CHAR PER WORD
08A9 0  01DE                    DC      KEYIN-1
08AA 0  000D              PHKX4 DC      D               STARTING AODR
08AB D  0001              PHKX5 DC      1               CONSTANT 1
08AC 0  FFFF              PHKX6 DC      /FFFF           CONSTANT FFFF
08AD 0  0000              PHKX7 DC      0               CONSTANT 0
08AE D  0010              PHKX8 DC      16              CONSTANT 16
08AF 0  00D0              PHDSW DC      0               HEX-DEC SWITCH
                          *
                          *                       CONV NUM TO DEC AND STORE
                          *                       * IN BINARY BUF
                          *
0880 0  10AD              POKY1 SLT     32
08B1 0  D840                    STD     PDKWA           ZERD OUT WORK AREA
                          *
                          *                       CK FOR 9 CH/WD
                          *
08B2 D  CDF5                    LD      PHKX2           GET CH/WD
08B3 00 B400092E                CMP   L PCKX1           COMPARE TO 9
08B5 D  7039                    MDX     PDKYE           ERROR TOO GREAT
08B6 D  7D01                    MDX     *+1
08B7 D  90F3                    S       PHKX5           SUB ONE
08B8 0  D0D1                    STD     PDKY2+1
08B9 00 67000000          PDKY2 LDX   L3 D              LDX MODIFIED CH/WD
08B8 D0 668D0872                LDX   I2 PHKY1+1
08BD D0 768008A8                MDX   12 PHKX2          SET UP 1ST POWER
08BF 0  6100                    LDX   1 0
08C0 0  C200              PDKY3 LD    2 0               GET BIN NUMBER
08C1 D0 A50008F6                M     I1 PDKX2          MULT BY POWER
08C3 0  71FC                    MDX   1 -4              CK FOR CH/WD GRT 4
08C4 0  7DD9                    MDX     PDKYH           CH/WD GRT 4
08C5 0  7104              PDKYJ MDX   1 4
08C6 D  10D0                    SLA     0
08C7 0  882A                    AD      PDKWA
08C8 0  D829                    STD     PDKWA
08C9 D  7101                    MDX   1 1
08CA 0  72FF                    MDX   2 -1
08CB 0  73FF                    MDX   3 -1
08CC D  70F3                    MDX     PDKY3
08CD D  7DD3                    MDX     PDKY6
08CE 0  18D0              PDKYH RTE     16              CH/WD GRT 4
08CF 0  A02A                    M       PDKX1+3         MULTIPY BY 10,000
08D0 0  70F4                    MDX     PDKYJ
                          *                       CK FOR SIGNED NUMBER
                          *
08D1 0  C006              PDKY6 LD      PHKX2
08D2 00 B40D092E                CMP   L PCKX1           CONS 9
08D4 0  701A                    MDX     PDKYE           ERROR TOO GREAT
08D5 D  7001                    MDX     *+1
08D6 0  7009                    MDX     PDKY7           CK SIGN
                          *                       CK FOR CH/WD GREATER
                          *                       * THAN 5
08D7 0  CDD0                    LD      PHKX2
08D8 0  8026                    CMP     PDKX3           CONS 5
08D9 0  700F                    MDX     PDKY8
08DA 0  7001                    MDX     *+1
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8C307410
8C3D7420
8C3D7430
8C307440
8C307450
8C307460
8C307470
8C3D7480
8C307490
8C3D750D
8C3D751D
8C3D7520
8C3D7530
8C30754C
8C3D755D
8C307560
8C307570
8C3D7580
8C3D7590
8C3D7600
8C307610
8C30762D
8C307630
8C30764D
8C30765D
8C30766D
8C3D7670
8C3D768D
8C307690
8C307700
8C307710
8C307720
8C3D7730
8C307740
8C307750
8C307760
8C307770
8C3D7780
8C307790
8C307800
8C307810
8C307820
8C3D7830
8C307840
8C3D7850
8C307860
8C307870
8C3D7880
8C307890
8C3D7900
8C307910
8C307920
8C307930
8C307940
8C307950
8C3D7960
8C307970
8C3D7980
8C307990
8C3D8000
8C308010
8C308D20
8C3D8030
8C308040
8C308050
8C308060
8C308070
8C3D8080
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D8DB 0  700F              *       MDX     PDKYA           GO TO CK FOR /7FFF
                          *
                          *                       SINGLE PRECISION NUMBER
                          *
08DC 00 66800872          POKYF LDX   I2 PHKY1+1
080E 0  C014                    LD      PDKWA+1         GET CONV NUMBER
D8DF 0  7DAB                    MDX     PHKYF
                          *                       CORRECT SIGN
D8ED 0  C200              PDKY7 LD    2 0
D8E1 00 4C18D8E9                BSC   L POKY8,+-        BRANCH IF POS NUMB
08E3 0  10AD                    SLT     32              CHANGE SIGN
08E4 0  980D                    SD      PDKWA
D8E5 D  0A0D              PDKY9 STD   2 D
D8E6 G0 74020130                MDX   L BWC,2
08E8 0  70A6                    MDX     PHKYH
08E9 0  C808              PDKY8 LDD     PDKWA           DOUBLE PREC POS NUM8
08EA 0  70FA                    MDX     PDKY9
                          *                       CK LESS THAN OR EQ /7FFF
D8EB 0  C806              PDKYA LDD     PDKWA
D8EC 0  9807                    SD      PDKX4           CONS 00000P000
08ED D0 4C2808DC                BSC   L POKYF,+Z        8RANCH TO SINGLE PREC
08EF D0 44800132          PDKYE BSI   I SER
08F1 9  0882                    DC      PCKBE
08F2    0000                    BSS   E 0
08F2    D002              PDKWA BSS     2               WORK AREA
08F4 0  0000              POKX4 DC      D               CONS /00008000
08F5 D  8D00                    DC      /8000
08F6 0  0001              PDKX2 DC      1               CONV TABLE
08F7 0  D00A              PDKX1 DC      10
08F8 D  0064                    DC      1DD
08F9 D  03E8                    DC      1000
08FA D  2710                    DC      1DDD0
08FB 0  00DA                    DC      10
08FC D  0064                    DC      100
08FD 0  D3E8                    DC      1DD0
08FE D  2710                    DC      10000
08FF D  0005              PDKX3 DC      5               CONS 5
                          *
                          *
                          *
                          *
                          *
                          *
                          *                       KEY8OARD TO BINARY RT
                          *
0900 0  D0D0              PCK8  DC      0
0901 0  6B27                    STX   3 PCKBX+1         SAVE X3
0902 0  D029                    STO     PCK8A           SAVE NUMBER
D903 D0 C48009D0                LD    I PCK8            GET LIMIT CK
0905 0  D001                    STO     PCKB1+1
09D6 00 670D0000          PCKB1 LOX   L3 0              SET X3 TO LIM CK
0908 00 C7000A5E                LO    L3 KECDD          LK UP CODE
09DA D  F021                    EOR     PCK8A
09D8 00 4C18D922                BSC   L PCK83,+-        BRANCH IF FOUND
090D 0  73FF                    MDX   3 -1              SKIP IF ILLEGAL
090E 0  70F9                    MDX     PCKB1+2
090F D0 C40008A8                LO    L PHKX2           CK FOR 9 CHAR FIELD
0911 0  901C                    S       PCKX1
0912 00 4C20091F                BSC   L PCK84,Z         GO TO ERROR IF NOT 9
0914 0  C017                    LD      PCK8A           CK FOR +
0915 0  F019                    EOR     PCKX2
0916 00 4C180926                BSC   L PCKBX-2,+-
0918 D  C013                    LD      PCK8A           CK FOR -
0919 0  FD16                    EDR     PCKX3
091A 00 4C2U091F                BSC   L PCK84,Z         GO TO ERROR, NO + -
091C D0 C400088E                LD    L PCKX4
091E D  7007                    MDX     PCKBX-2
091F 00 44800132          PCK84 BSI   1 SER             IMPROPER KEY CODE
0921 0  0882                    DC      PCKBE           * I.E NOT 0-9 OR 0-F
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8C3D8090
8C308100
8C3D811D
8C308120
8C308130
8C308140
8C30815D
8C308160
8C308170
8C3D8180
8C3D8190
8C3082D0
8C30821D
8C308220
8C308230
8C308240
8C3D825D
8C308260
8C30827D
8C30828D
8C308290
8C30830D
8C308310
8C30832D
8C3D833D
8C308340
8C308350
8C308360
8C308370
8C308380
8C308390
8C308400
8C308410
8C30842D
8C308430
8C3D844D
8C30845D
8C308460
8C30847D
8C308480
8C3D8490
8C308500
8C308510
8C308520
8C308530
8C3D8540
8C3D8550
8C308560
8C30857D
8C308580
8C308590
8C3D860D
8C308610
8C308620
8C3D8630
8C308640
8C308650
8C308660
8C3D8670
8C308680
8C308690
8C308700
8C30871D
8C308720
8C308730
8C3D8740
8C30875D
8C3D8760
```

8K EDIT CONTROL

```
0922 0  73FF      PCKB3 MDX   3 -1                                  8C308770
0923 0  1000            SLA     0                                   8C30878D
0924 0  6808            STX   3 PCKBB                               8C30879D
0925 D  C007            LD      PCKBB       GET CONVERTED NUM       8C30880D
0926 00 74D10900        MDX   L PCK8,1                              8C30881D
0928 00 67000000  PCKBX LDX   L3 0          RESTORE X3              8C30882D
092A D0 4C8009DD        BSC   I PCKB                                8C308830
                  *                                                 8C308840
092C 0  0000      PCKBA DC      0           ORIGINAL NUMBER         8C30885D
092D 0  0000      PCKBB DC      0           CONVERTED NUMBER        8C308860
092E D  D009      PCKX1 DC      9                                   8C308870
092F D  800D      PCKX2 OC      /8000       +                       8C308880
0930 0  4000      PCKX3 OC      /4000       -                       8C30889D
                  *                                                 8C308900
                  *                                                 8C30891D
                  *                                                 8C308920
                  *           PUNCH EDIT CARD OUTPUT ROUTINE        8C30893D
                  *                                                 8C308940
0931 0  0000      PECOR DC      0                                   8C308950
0932 00 0C000986        STD   L PECX1       SAVE REGISTERS          8C308960
0934 0  285C            STS     PECOS                               8C308970
0935 0  181D            SRA     16                                  8C308980
0936 0  6955      PECYF STX   1 PECY1+1                             8C308990
0937 0  6A56            STX   2 PECY2+1                             8C309000
0938 0  6B57            STX   3 PECY3+1                             8C309010
0939 00 4480D12C        BSI   I KEY         PRINT EDIT CARD LIST    8C309020
093B 0  D8C9            OC      PECXF       * MESSAGE               8C309030
093C 0  0000            DC      0                                   8C30904D
                  *                                                 8C30905D
                  *                                                 8C309060
                  *                                                 8C3D9070
                  *           READ A CARD AND VERIFY                6C309080
                  *           * THAT IT IS BLANK                    8C30909D
                  *                                                 8C3091D0
093D D0 66000442        LDX   L2 SEIB       SET X2 = ED IMAG BUF    8C309110
093F 00 650001E0        LDX   L1 KEYIN+1    X1 = OPT REG            8C309120
0941 00 0C000B38  PECY7 XIO   L  ROSW        READ DATA SWS           8C309130
0943 00 C4D00B3A        LD    L  DTSW       GET SWS                 8C309140
0945 00 4C28094B        BSC   L  PT,+Z      BRANCH IF P T           8C30915D
0947 0  1D01            SLA     1                                   8C309160
0948 00 4C28D94B        BSC   L  PT,+Z      BRANCH IF BOTH          8C309170
094A 0  7007            MDX     NTPT        NOT PAPER TAPE          8C309180
094B 00 44000817  PT    BSI   L  PPT        PUNCH LEADER        SRC 8C309190
094D 00 C4000B3A        LD    L  DTSW       GET SWS                 8C3D9200
094F D  1D01            SLA     1                                   8C309210
0950 00 4C100966        BSC   L  PECYE,-    BRANCH IF NOT BOTH      8C309220
0952 0  0868      NTPT  XIO     PECX5       SENSE DSW               8C309230
0953 00 4C0409A8        BSC   L  PECY6,E    XFER IF NOT READY       8C309240
0955 0  D866            XIO     PECX4       READ A CARD             8C309250
0956 0  D867      PECY4 XIO     PECX5       SENSE DSW               8C30926D
0957 0  1801            SRA     1           CK BUSY                 8C309270
0958 00 4CD40956        BSC   L  PECY4,E    XFER IF BUSY            8C30928D
095A 0  180C            SRA     12                                  8C309290
0958 0D 4C0409AE        BSC   L  PECY8,E    XFER IF ERROR ON        8C309300
095D 0  D862            XIO     PECX6       RESET DSW               8C309310
                  *                                                 8C309320
                  *                                                 8C309330
                  *           CK FOR BLANK CARD                     8C30934D
                  *                                                 8C309350
095E D  1810            SRA     16                                  8C3D9360
095F 0  6350            LDX   3 80                                  8C309370
0960 00 EF00010F  PECY5 OR    L3 KEYIN                              8C309380
0962 0  73FF            MDX   3 -1                                  8C309390
0963 0  7DFC            MDX     PECY5                               8C3094D0
0964 00 4C200952        BSC   L  NTPT,Z                             8C309410
                  *                                                 8C309420
                  *                                                 8C309430
                  *           BLANK OUT OUTPUT BUFF                 8C309440
                  *
0966 0  1810      PECYE SRA     16
0967 0  6380            LDX   3 -80
```


8K EDIT CONTROL

```
0968 00 D700D230  PECYA STD   L3 KEYIN+81                          8C30945D
096A 0  73D1            MDX   3 1                                   8C309460
096B D  7DFC            MDX     PECYA                               8C309470
                  *                                                 8C309480
096C 00 6700FF80        LDX   L3 -80        SET X3 = COL CONTROL    8C309490
                  *                                                 8C309500
                  *                   SET E INTO OUTPUT AREA        8C309510
096E 00 C4000A6D        LD    L  PBIX2                              8C309520
097D 0  D1D0            STO     1 0                                 8C309530
0971 0  7301            MDX     3 1                                 8C30954D
                  *                                                 8C309550
                  *                   SET PIO INTO OUTPUT AREA      8C309560
                  *                                                 8C309570
0972 0  C20D            LD      2 0                                 8C309580
0973 0  1008            SLA     8                                   8C309590
0974 0  4051            BSI     PBIHX       CONV TO HEX AND     SRC 8C309600
                  *                   * STORE IN OUTPUT             8C309610
                  *                                                 8C309620
                  *                   CK FOR END OF ED CO DIR       8C309630
                  *                                                 8C309640
0975 0  C201            LD      2 1                                 8C309650
0976 00 F40008C8        EOR   L  PECXD                              8C309660
0978 00 4C200995        BSC   L  PECYB,Z    BRANCH IF NOT END CD    8C309670
097A 00 C4000BC8        LD    L  PECXD      SET FFFF EDIT SNO       8C309680
097C 0  4049            BSI     PBIHX       CONV AND STORE      SRC 8C309690
097D 0  4061            BSI     PED         PUNCH CARD          SRC 8C309700
097E 00 44000A0A        BSI   L  PPECD      PRINT THE EDIT CARD     8C309710
0980 00 C4000B3A        LD    L  DTSW       GET SWS                 8C309720
0982 0D 4C28098B        BSC   L  PECY1,+Z   BRANCH IF NOT CARDS      8C309730
0984 0  0835            XIO     PECXC       STACKER SELECT          8C309740
0985 0  083C            XIO     PECX7       FEED A CARD             8C309750
0986 0  0837      PECYC XIO     PECX5       SENSE DSW               8C30976D
0987 0  1801            SRA     1                                   8C309770
0988 00 4C04D986        BSC   L  PECYC,E                            8C309780
098A 0  D835            XIO     PECX6       RESET DSW               8C309790
                  *                                                 8C309830
0988 00 65000000  PECY1 LDX   L1 0          RESTORE REGS            8C309810
0980 00 66000000  PECY2 LDX   L2 0                                  8C30982D
098F 00 67000000  PECY3 LDX   L3 0                                  8C309830
0991 0  2000      PECOS LDS     0                                   8C309840
0992 0  C823            LOD     PECX1                               8C309850
0993 00 4C800931        BSC   I  PECOR      EXIT FROM ROUTINE       8C309860
                  *                   SET CARD NUMB IN OUTPUT       8C309870
0995 0  C201      PECYB LD      2 1                                 8C309880
0996 0  E821            OR      PECX3       ADD IN ED               8C309890
0997 0  402E            BSI     PBIHX       CONV AND STORE      SRC 8C309900
                  *                                                 8C30991D
                  *                   SET NUMB ENTRIES PER CARD     8C309920
                  *                                                 8C309930
0998 0  C202            LD      2 2                                 8C309940
0999 D  1888            SRT     8                                   8C30995D
099A 0  1810            SRA     16                                  8C30996D
099B D  1088            SLT     8                                   8C30997D
099C 0  D01C            STO     PECXE       SAVE                    8C309980
099D 0  4D28            BSI     PBIHX       CONV AND STORE      SRC 8C309990
                  *                   MOVE DATA TO OUTPUT BUFF      8C310000
099E 0  C203      PECYD LD      2 3                                 8C31001D
099F D  4026            BSI     PBIHX       CONV AND STORE      SRC 8C310020
09AD 0  7201            MDX   2 1           BUMP IMAG BUF ADDR      8C310030
09A1 D0 74FF0989        MDX   L PECXE,-1    DECREMENT ENTRIES/CD    8C310040
09A3 D  70FA            MOX     PECYD                               8C31005D
09A4 0  4D3A            BSI     PED         PUNCH A CARD        SRC 8C31DD60
09A5 0  4064            BSI     PPECD       PRINT CARD          SRC 8C310070
09A6 0  72C3            MDX   2 3                                   8C310080
09A7 0  70A5            MDX     PT+2        BRANCH                  8C310090
                  *                                                 8C310100
09A8 00 4480012C  PECY6 BSI   I  KEY                                8C31D110
09AA 0  0B8F            DC      PECX9                               8C31D120
```

8K EDIT CONTROL

```
09AB 0  0000              OC        0                                       8C310130
09AC 0  3003        WAIT3 WAIT      3          1442 NOT READY =RO)          8C310140
                    *                          *PUSH START TO RETRY         8C310150
09AD 0  7093              MDX       PECY7      BRANCH                       8C310160
                    *                                                       8C310170
09AE 00 4480012C    PECY8 BSI   I   KEY                                     8C310180
09B0 0  08BF              DC        PECX9                                   8C310190
09B1 0  0000              DC        0          1442 READ ERROR              8C310200
09B2 0  08D0              XIO       PECX6      RESET DSW                    8C310210
09B3 0  3004        WAIT4 WAIT      4          PUSH START TO REREAD         8C310220
09B4 0  70BC              MDX       PECY7      BRANCH                       8C310230
                    *                                                       8C310240
09B6    0000              BSS   E   0                                       8C310250
09B6    0002        PECX1 BSS       2          SAVE A + Q                   8C310260
09B8 0  ED00        PECX3 DC        /E000                                   8C310270
09B9 0  0000        PECXE DC        0          ENTRIES PER CARD             8C310280
09BA 0  0000        PECXC DC        0          STACKER SELECT IOCC          8C310290
09BB 0  1480              DC        /1480                                   8C310300
09BC 0  01E0        PECX4 DC        KEYIN+1    READ A CARD IOCC             8C310310
09BD 0  1600              DC        /1600                                   8C310320
09BE 0  0000        PECX5 DC        0          SENSE 1442 DSW               8C310330
09BF 0  1700              DC        /1700                                   8C310340
09C0 0  0000        PECX6 DC        0          SENSE AND RESET DSW          8C310350
09C1 0  1703              DC        /1703                                   8C310360
09C2 0  0000        PECX7 DC        0          FEED A CARD IOCC             8C310370
09C3 0  1402              DC        /1402                                   8C310380
09C4 0  01E0        PECX8 DC        KEYIN+1    PUNCH A CARD IOCC            8C310390
09C5 0  1500              DC        /1500                                   8C310400
                    *                                                       8C310410
                    *                                                       8C310420
                    *               BINARY TO HEX  CARD IMAGE RT            8C310430
                    *                                                       8C310440
09C6 0  0000        PBIHX DC        0                                       8C310450
09C7 0  1800              RTE       16         PUT BIN WORD TO BE           8C310460
                    *                          * CONVERTED IN Q REG         8C310470
09C8 0  6911              STX     1 PBIY1+1    SAVE X1                      8C310480
09C9 0  6A12              STX     2 PBIY2+1    SAVE X2                      8C310490
09CA 0  6104              LDX     1 4          SET LOOP CONTROL             8C310500
09CB 0  1810        PBIY3 SRA       16         CONV CHAR TO HEX             8C310510
09CC 0  1084              SLT       4                                       8C310520
09CD 0  0001              STO       *+1                                     8C310530
09CE 00 66000000          LDX    L2 0                                       8C310540
09D0 00 C6000A5F          LD     L2 KECOD+1    GET HEX EQUIV                8C310550
09D2 00 D7000230          STO    L3 KEYIN+81                                8C310560
09D4 0  7301              MDX     3 1          BUMP TO NEXT OUTPUT          8C310570
09D5 0  1000              SLA       0          NOP                          8C310580
09D6 0  71FF              MDX     1 -1                                      8C310590
09D7 0  70F3              MDX       PBIY3                                   8C310600
09D8 0  7301              MDX     3 1          PUT BLANK IN OUTPUT          8C310610
09D9 00 65000000    PBIY1 LDX    L1 0          RESTORE X1                   8C310620
09DB 00 66000000    PBIY2 LDX    L2 0          RESTORE X2                   8C310630
09DD 00 4C8009C6          BSC   I   PBIHX                                   8C310640
                    *                                                       8C310650
                    *                  PUNCH A CARD ROUTINE                 8C310660
09DF 0  0000        PED   DC        0                                  SE   8C310670
09E0 00 C4000B3A          LD    L   DTSW       GET SWS                      8C310680
09E2 00 4C280B3B          BSC   L   HB05,+Z    BRANCH IF P T                8C310690
09E4 0  1001              SLA       1                                       8C310700
09E5 00 4C280B3B          BSC   L   HB05,+Z    BRANCH IF BOTH               8C310710
09E7 00 C400022F    PEDEN LD    L   KEYIN+80                                8C310720
09E9 0  E81F              OR        PEDX1      * AT END OF OUTPUT           8C310730
09EA 00 D400022F          STO   L   KEYIN+80                                8C310740
09EC 0  08D1        PEDY4 XIO       PECX5      SENSE DSW                    8C310750
09ED 00 4C0409FB          BSC   L   PEDY1,E    XFER IF NOT RDY              8C310760
09EF 0  08CA              XIO       PECXC      STACKER SELECT               8C310770
09F0 0  08D3              XIO       PECX8      PUNCH CARD                   8C310780
09F1 0  08CC        PEDY2 XIO       PECX5      SENSE DSW                    8C310790
09F2 0  1801              SRA       1          CK BUSY                      8C310800
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8K EDIT CONTROL

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09F3 00 4C0409F1          BSC   L   PEDY2,E    XFER IF BUSY                 8C310810
09F5 0  180C              SRA       12                                      8C310820
09F6 00 4C040A02          BSC   L   PEDY3,E    XFER IF ERROR ON             8C310830
09F8 0  08C7              XIO       PECX6      RESET DSW                    8C310840
09F9 00 4C8009DF    PEDEX BSC   I   PED        EXIT                  SX     8C310850
                    *                                                       8C310860
09FB 0  08C2        PEDY1 XIO       PECX5      SENSE DSW                    8C310870
09FC 00 4480012C          BSI   I   KEY                                     8C310880
09FE 0  08BF              DC        PECX9                                   8C310890
09FF 0  0000              DC        0                                       8C310900
0A00 0  3006        WAIT6 WAIT      6          1442 NOT RDY=PUNCH)          8C310910
0A01 0  70EA              MDX       PEDY4                                   8C310920
                    *                                                       8C310930
0A02 0  08BD        PEDY3 XIO       PECX6      RESET DSW                    8C310940
0A03 00 4480012C          BSI   I   KEY                                     8C310950
0A05 0  08BF              DC        PECX9                                   8C310960
0A06 0  0000              DC        0                                       8C310970
0A07 0  3007        WAIT7 WAIT      7          1442 ERROR AFTER             8C310980
                    *                          * PUNCHING                   8C310990
0A08 0  70E3              MDX       PEDY4                                   8C311000
                    *                                                       8C311010
0A09 0  0008        PEDX1 DC        /0008      END OF PUNCH BIT             8C311020
                    *                                                       8C311030
                    *                                                       8C311040
                    *                                                       8C311050
                    *                                                       8C311060
                    *                  CONVERT CCD TO EBDIC + KEY           8C311070
                    *                                                       8C311080
0A0A 0  0000        PPECO DC        /0000                                   8C311090
0A0B 0  692B              STX     1 PPEY5+1    SAVE XRS + A + Q             8C311100
0A0C 0  6A2C              STX     2 PPEY6+1                                 8C311110
0A0D 0  6B20              STX     3 PPEY7+1                                 8C311120
0A0E 0  D833              STD       PPEX3                                   8C311130
                    *                                                       8C311140
                    *                                                       8C311150
0A0F 00 650001DF          LDX    L1 KEYIN      INITIALIZE ROUTINE           8C311160
0A11 00 6D00010E          STX    L1 K1WC                                    8C311170
0A13 0  6380              LDX     3 -80                                     8C311180
0A14 0  6202              LDX     2 2                                       8C311190
0A15 0  61EF        PPEY4 LDX     1 -17        RESTORE KECOD POINTR         8C311200
0A16 00 C7000230    PPEY2 LD     L3 KEYIN+81   FETCH KEYBD CHAR             8C311210
0A18 00 F5000A6F          EOR    L1 KECOD+17                                8C311220
0A1A 0  1804              SRA       4                                       8C311230
0A1B 00 4C180A1F          BSC   L   PPEY1,+-   BR IF COMPARE                8C311240
0A1D 0  7101              MDX     1 1                                       8C311250
0A1E 0  70F7              MDX       PPEY2      TRY NEXT CHAR                8C311260
                    *                                                       8C311270
                    *                                                       8C311280
0A1F 00 C5000AA3    PPEY1 LD     L1 KTILT+16   PACK 2 EBDIC CHARS           8C311290
0A21 0  1008              SLA       8                                       8C311300
0A22 0  1808              RTE       24                                      8C311310
0A23 0  72FF              MDX     2 -1         SKIP IF DONE TWO CHA RS      8C311320
0A24 0  7019              MDX       PPEY3      FETCH NEXT CHAR              8C311330
0A25 0  6202              LDX     2 2                                       8C311340
0A26 0  1810              RTE       16                                      8C311350
0A27 00 D48001DE          STD   I   K1WC       PLACE IN OUTPUT AREA         8C311360
0A29 00 740101DE          MDX   L   K1WC,1     NEXT STORAGE AREA            8C311370
0A2B 0  F015              EOR       PPEX2                                   8C311380
0A2C 00 4C200A3E          BSC   L   PPEY3,Z    BR - NOT DBLE BLANK          8C311390
0A2E 0  61FF        PPEY8 LDX     1 -1         SET TERM                     8C311400
0A2F 00 6D80010E          STX    I1 K1WC                                    8C311410
0A31 00 4480012C          BSI   I   KEY        GO PRINT WHOLE EDIT          8C311420
0A33 0  01DF              DC        KEYIN      MSG AREA                     8C311430
0A34 0  0000              DC        0                                       8C311440
0A35 0  C80C              LDD       PPEX3      RESTORE XRS, A AND Q         8C311450
0A36 00 65000000    PPEY5 LDX    L1 /0000                                   8C311460
0A38 00 66000000    PPEY6 LDX    L2 /0000                                   8C311470
0A3A 00 67000000    PPEY7 LDX    L3 /0000                                   8C311480
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0A3C 00 4C800A0A          BSC  1  PPECD     EXIT TO USER                  8C311490
                          *                                                 8C311500
0A3E 0  7301    PPEY3     MDX    3 1        SKIP IF DONE                  8C311510
0A3F 0  7005              MDX    PPEY4                                    8C311520
0A40 0  70E0              MDX    PPEY8                                    8C311530
                          *                                                 8C311540
0A41 0  4040    PPEX2     DC     /4040      DOUBLE SPACE EBDIC            8C311550
0A42    0002    PPEX3     BSS  E 2          SAVED A AND Q                 8C311560
                          *                                                 8C311570
                          *                                                 8C311580
                          *                                                 8C311590
                          *                  KEYBOARD CODES                 8C311600
0A44    0000              BSS  E                                           8C311610
0A44 0  0000    KSNS      DC     /0000      SENSE-NO RESET                8C311620
0A45 0  0F02              DC     /0F02                                    8C311630
0A46 0  0000    KMSG      DC     /0000      MESS ADRS                     8C311640
0A46            KECSO     EQU    KMSG                                     8C311650
0A47 0  0000    KOUT      DC     /0000      ROT-TLT OUTPUT TABLE          8C311660
0A48 0  0000              DC     /0000                                    8C311670
0A49 0  0000              DC     /0000                                    8C311680
0A4A 0  0004    K0004     DC     4               CONSTANT                 8C311690
                          *                                                 8C311700
0A4B 0  4400    KL        DC     /4400                                    8C311710
0A4C 0  0000    KAQ       DC     0          ACC                           8C311720
0A4D 0  0000              DC     0          Q REG                         8C311730
0A4E 0  0000    KRDY      DC     /0000      SENSE - RESET CMND            8C311740
0A4F 0  0F03              DC     /0F03                                    8C311750
0A50 0  0A4E    KPRT      DC     KRDY       PRINT COMMAND                 8C311760
0A51 0  0902              DC     /0902                                    8C311770
0A52 0  0000    KPCD      DC     /0000      K80 PROCEED COMMAND           8C311780
0A53 0  0C02              DC     /0C02                                    8C311790
0A54 0  010F    KREO      DC     KEYIN      READ K80 COMMAND              8C311800
0A55 0  0A02              DC     /0A02                                    8C311810
0A56 0  0001    KONE      DC     1          CONSTANT 1                    8C311820
0A57 0  8120    KN        DC     /8120      UPPER CASE N                  8C311840
0A58 0  8060    KY        DC     /8060           Y                        8C311850
0A59 0  4420              DC     /4420           *                        8C311860
0A5A 0  FFFF              DC     /FFFF                                    8C311870
0A5B 0  8420    KECPO     DC     /8420                                    8C311880
0A5C 0  80A0              DC     /80A0           +                        8C311890
0A5D 0  4000              DC     /4000           -                        8C311900
                          *                                                 8C311910
0A5E 0  0000    KECOD     DC     /0000      SPACE                         8C311920
0A5F 0  2000              DC     /2000      0                             8C311930
0A60 0  1000              DC     /1000      1                             8C311940
0A61 0  0800              DC     /0800      2                             8C311950
0A62 0  0400              DC     /0400      3                             8C311960
0A63 0  0200              DC     /0200      4                             8C311970
0A64 0  0100              DC     /0100      5                             8C311980
0A65 0  0080              DC     /0080      6                             8C311990
0A66 0  0040              DC     /0040      7                             8C312000
0A67 0  0020              DC     /0020      8                             8C312010
0A68 0  0010              DC     /0010      9                             8C312020
                          *                                                 8C312030
0A69 0  9000    KECAO     DC     /9000      A                             8C312040
0A6A 0  8800              DC     /8800      B                             8C312050
0A6B 0  8400    KC        DC     /8400      C                             8C312060
0A6C 0  8200              DC     /8200      D                             8C312070
0A6D 0  8100    PB1X2     DC     /8100      E                             8C312080
0A6E 0  8080              DC     /8080      F                             8C312090
                          *                                                 8C312100
0A6F 0  0002    KRENT     DC     /0002      ERASE FIELD                   8C312110
0A70 0  0004    KERSE     DC     /0004      ERASE CHAR                    8C312120
0A71 0  0008    KENOK     DC     /0008      END OF MESSAGE                8C312130
0A72 0  4100    KAL       DC     /4100      LOWER CASE N                  8C312140
0A73 0  2020              DC     /2020           Y                        8C312150
0A74 0  4220              DC     /4220           *                        8C312160
0A75 0  FFFF              DC     /FFFF                                    8C312170
```



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0A76 0  8220              DC     /8220                                    8C312180
0A77 0  FFFF              DC     /FFFF                                    8C312190
0A78 0  FFFF              DC     /FFFF                                    8C312200
0A79 0  2420    KCMA      DC     /2420                                    8C312210
                          ********************************************     8C312220
                          *                                                8C312230
                          *                  TYPEWRITER CODES              8C312240
                          *                    AND EBDIC CODES             8C312250
                          *                                                8C312260
0A7A 0  16C7    KTGLT     DC     /16C7      G                             8C312270
0A7B 0  26C8              DC     /26C8      H                             8C312280
0A7C 0  22C9              DC     /22C9      I                             8C312290
0A7D 0  7E01              DC     /7E01      J                             8C312300
0A7E 0  5A02              DC     /5AD2      K                             8C312310
                          *                                                8C312320
0A7F 0  5ED3    KLRT      DC     /5ED3      L                             8C312330
0A80 0  72D4              DC     /72D4      M                             8C312340
                          *                                                8C312350
0A81 0  96E7              DC     /96E7      X                             8C312360
0A82 0  5206              DC     /52D6      O                             8C312370
0A83 0  56D7              DC     /56D7      P                             8C312380
0A84 0  6608              DC     /6608      Q                             8C312390
0A85 0  6209              DC     /62D9      R                             8C312400
0A86 0  9AE2              DC     /9AE2      S                             8C312410
0A87 0  9EE3              DC     /9EE3      T                             8C312420
0A88 0  B2E4              DC     /B2E4      U                             8C312430
0A89 0  B6E5              DC     /B6E5      V                             8C312440
0A8A 0  92E6              DC     /92E6      W                             8C312450
0A8B 0  7605              DC     /76D5      N                             8C312460
                          *                                                8C312470
0A8C 0  A6E8              DC     /A6E8      Y                             8C312480
0A8D 0  065C              DC     /D65C      *                             8C312490
0A8E 0  8068              DC     /806B      ,                             8C312500
0A8F 0  004B    KTPLT     DC     /004B      .                             8C312510
0A90 0  DA4E              DC     /DA4E      +                             8C312520
0A91 0  8460              DC     /8460      -                             8C312530
                          *                                                8C312540
0A92 0  2140    KTDLT     DC     /2140      SPACE                         8C312550
0A93 0  C4F0    KTILT     DC     /C4F0      0                             8C312560
0A94 0  FCF1              DC     /FCF1      1                             8C312570
0A95 0  D8F2              DC     /D8F2      2                             8C312580
0A96 0  DCF3              DC     /DCF3      3                             8C312590
0A97 0  F0F4              DC     /F0F4      4                             8C312600
0A98 0  F4F5              DC     /F4F5      5                             8C312610
0A99 0  00F6              DC     /00F6      6                             8C312620
0A9A 0  04F7              DC     /04F7      7                             8C312630
0A9B 0  E4F8              DC     /E4F8      8                             8C312640
0A9C 0  E0F9              DC     /E0F9      9                             8C312650
                          *                                                8C312660
0A9D 0  3EC1    KTALT     DC     /3EC1      A                             8C312670
0A9E 0  1AC2              DC     /1AC2      B                             8C312680
0A9F 0  1EC3              DC     /1EC3      C                             8C312690
0AA0 0  32C4              DC     /32C4      D                             8C312700
0AA1 0  36C5              DC     /36C5      E                             8C312710
0AA2 0  12C6              DC     /12C6      F                             8C312720
                          *                                                8C312730
0AA3 0  815B    KCR       DC     /815B      CARRIER RETURN                8C312740
                          *                                                8C312750
                          *                  KEYBOARD ERROR MSG            8C312760
0AA4 0  D600    KFELD     DC     /D600      *                             8C312770
0AA5 0  0600              DC     /D600      *                             8C312780
0AA6 0  D600              DC     /0600      *                             8C312790
0AA7 0  8100              DC     /8100      CR                            8C312800
0AA8 0  3600              DC     /3600      E                             8C312810
0AA9 0  C400              DC     /C400      0                             8C312820
0AAA 0  C400              DC     /C400      0                             8C312830
0AAB 0  FC00              DC     /FC00      1                             8C312840
0AAC 0  2100              DC     /2100                                    8C312850
```

```
0AAD 0  2100            DC      /2100     SP                          8C312860
0AAE 0  5E00            DC      /5E00     L                           8C312870
0AAF 0  2200            DC      /2200     I                           8C312880
0AB0 0  7600            DC      /7600     N                           8C312890
0AB1 0  3600            DC      /3600     E                           8C312900
0AB2 0  2100            DC      /2100     SP                          8C312910
0AB3 0  1E00            DC      /1E00     C                           8C312920
0AB4 0  3E00            DC      /3E00     A                           8C312930
0AB5 0  7600            DC      /7600     N                           8C312940
0AB6 0  1E00            DC      /1E00     C                           8C312950
0AB7 0  3600            DC      /3600     E                           8C312960
0AB8 0  5E00            DC      /5E00     L                           8C312970
0AB9 0  5E00            DC      /5E00     L                           8C312980
0ABA 0  3600            DC      /3600     E                           8C312990
0ABB 0  3200            DC      /3200     D                           8C31300D
0ABC 0  8120        K8120 DC    /8120                                 8C313010
0ABD 0  8101            DC      /8101     CR                          8C313020
                    *                                                 8C313030
                    *           ROUTINE TO READ ONE                   8C313040
                    *           SKELTON SECTION                       8C313050
                    *                                                 8C313060
0ABE 0  0000        RDSK  DC    0                                 SE  8C313070
0ABF 0  C005            LD      RDSX0     GET LDR RETURN              8C313080
0AC0 00 04000124        STO  L  /0124     SET                         8C313090
0AC2 0  6050            LOX  X  /0050     BRANCH TO LDR               8C313100
0AC3 00 4C800ABE    RDSK1 BSC  I RDSK     EXIT                    SX  8C313110
0AC5 0  0AC3        RDSX0 DC    RDSK1     RETURN                      8C313120
                    ********************************************      8C313130
                    *                                                 8C313140
                    *                                                 8C313150
                    *                                                 8C313160
                    *           XFER VECTOR TBLS BY FORM NO.          8C313170
0AC6 0  0ADE        LRAIT DC    DONT      FORM 0                      8C313180
0AC7 0  0AD6            DC      LRTF1       1                         8C313190
0AC8 0  0AFE            DC      LRTF2       2                         8C313200
                    *                                                 8C313210
                    *                                                 8C313220
                    *                                                 8C313230
                    *                                                 8C313240
                    *                                                 8C313250
                    *                                                 8C313260
                    *                                                 8C313270
                    *                                                 8C313280
0AC9 0  0000        LWKA  DC                WORK STORAGE AREA         8C313290
                    *                                                 8C313300
0ACA 0  0000        LDDIT DC                                      SE  8C313310
0ACB 0  6200            LDX   2 0                                     8C313320
0ACC 00 6E00043F        STX  L2 LGROP     RESET GROUP CNTR            8C313330
0ACE 00 65800ACA        LDX  I1 LDDIT                                 8C313340
0AD0 0  C101            LD    1 1         LD CHR / WORD CNT           8C313350
0AD1 0  D0F7            STO     LWKA      SAVE IT                     8C313360
0AD2 0  6901            STX   1 LWCLD+1                               8C313370
0AD3 00 65800000    LWCLD LDX  I1         LD FORM NUMBER              8C313380
0AD5 00 45800AC6        BSI  I1 LRAIT     BRANCH TO RTN               8C313390
0AD7 00 74020ACA    DONT1 MDX  L LDDIT,2  INCR RETURN                 8C313400
0AD9 00 4C800ACA        BSC  I  LDDIT     EXIT                    SX  8C313410
                    *                                                 8C313420
0ADB 0  0000        DONT  DC    0                                     8C313430
0ADC 00 4C000AD7        BSC  L  DONT1                                 8C313440
                    *                                                 8C313450
                    *                                                 8C313460
                    *                                                 8C313470
0ADE 0  0000        LBGNR DC                                      SE  8C313480
0ADF 00 650001DE        LDX  L1 KIWC      LD INPUT TBL ADDR           8C313490
0AE1 0  C100            LD    1 0         LD INPUT WC                 8C313500
0AE2 00 D400043E        STO  L  LWC       SAVE WC                     8C313510
0AE4 00 6680043E        LDX  I2 LWC                                   8C313520
0AE6 0  7201            MDX   2 1                                     8C313530
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```
0AE7 00 7402043E        MDX  L LWC,2      ADD 2 TO WC                 8C313540
0AE9 00 4C800A0E        BSC  I LBGNR      EXIT                    SX  8C313550
                    *                                                 8C313560
                    *                                                 8C313570
                    *                                                 8C313580
                    *                 DATA WRONG ERROR                8C313590
0AEB 0  0000        LERR  DC    0                                     8C313600
0AEC 00 44800132        BSI  I  SER       DATA WRONG              SRC 8C313610
0AEE 0  0BB2            DC      PCKBE                                 8C313620
                    *                                                 8C313630
                    *                                                 8C313640
                    *                                                 8C313650
0AEF 0  0000        LWCC  DC                SE                        8C313660
0AF0 0  6B01            STX   3 LOO1+1                                8C313670
0AF1 00 C5000000    LD01  LD    L1          LD SPACE                  8C313680
0AF3 00 44200AF7        BSI  L  LMTRM,Z   BR IF NOT SPACE             8C313690
0AF5 00 4C800AEF        BSC  I  LWCC      EXIT                    SX  8C313700
                    *                                                 8C313710
                    *                                                 8C313720
                    *                                                 8C313730
                    *                                                 8C313740
0AF7 0  0000        LMTRM DC                                      SE  8C313750
0AF8 0  F004            EOR     LTERM                                 8C313760
0AF9 00 44200AEB        BSI  L  LERR,Z    BR IF ERROR             SRC 8C313770
0AFB 00 4C800AF7        BSC  I  LMTRM     EXIT                    SX  8C313780
0AFD 0  FFFF        LTERM DC    /FFFF     ALL BITS                    8C313790
                    *                                                 8C313800
                    *                                                 8C313810
                    *                                                 8C313820
                    *                                                 8C313830
                    *                                                 8C313840
                    *                                                 8C313850
                    *                                                 8C313860
0AFE 0  0000        LRTF2 DC                                      SE  8C313870
0AFF 0  D002            STO     LCHBW     SET CHR / WD                8C313880
0B00 00 44800137        BSI  I  PHKYB     GO CONVERT TO HEX       SRC 8C313890
0B02 0  0000        LCH8W DC              CHR / BINARY WORD           8C313900
0B03 0  0437            DC      ZERO      DISPLACEMENT ADDR           8C313910
0B04 00 4C800AFE        BSC  I  LRTF2     EXIT                    SX  8C313920
                    *                                                 8C313930
                    *                                                 8C313940
                    *                                                 8C313950
                    *                                                 8C313960
                    *                                                 8C313970
0B06 0  0000        LRTF1 DC                                      SE  8C313980
0B07 0  D003            STO     LCHBD     SET CHR / WD                8C313990
0B08 0  4006            BSI     LTRFX     GO TO SETUP AND CK          8C314000
0B09 00 44800136        BSI  I  PDKYB     GO CONVERT TO DEC       SRC 8C314010
0B0B 0  0000        LCHBD DC              CHR / BINARY WORD           8C314020
0B0C 0  0437            DC      ZERO      DISPLACEMENT ADDR           8C314030
0B0D 00 4C800B06        BSC  I  LRTF1     EXIT                    SX  8C314040
                    *                                                 8C314050
                    *                                                 8C314060
                    *                                                 8C314070
                    *                                                 8C314080
0B0F 0  0000        LTRFX DC                                      SE  8C314090
0B10 0  40CD            BSI     LBGNR     GO SET UP FOR FORM          8C314100
0B11 00 67800AC9        LDX  I3 LWKA      LD CHAR / WC CNT            8C314110
0B13 0  7301            MDX   3 1                                     8C314120
0B14 0  40DA            BSI     LWCC      GO TO CHECK FORM            8C314130
0B15 00 4C800B0F        BSC  I  LTRFX     EXIT                    SX  8C314140
                    *                                                 8C314150
                    *                                                 8C314160
                    *                                                 8C314170
                    *                                                 8C314180
                    *                                                 8C314190
                    *                 PUNCH LEADER                    8C314200
                    *                                                 8C314210
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8K EDIT CONTROL

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0817 0  0000        PPT    DC        0                          SE   8C314220
081B 0  6303        PPT1   LDX    3 3          SET IXING             8C314230
0819 0  C009        PPT1A  LD        WDCT      SET WD CT             8C314240
081A 0  0018               STO       CHOUT                           8C314250
081B 00 C7000823           LD     L3 LEADF-1   GET PATTERN           8C314260
081D 0  D014               STO       XIOUT     SET                   8C31427D
081E 0  4008               BSI       PUTAP     PUNCH TAPE       SRC  8C314280
081F 0  73FF               MDX    3 -1         DECR IX 3             8C314290
0820 0  70F8               MDX       PPT1A     LOOP                  8C314300
0821 00 4C800817           BSC    I  PPT       EXIT             SX   8C314310
                    *                                                8C314320
0823 0  0019        WDCT   DC        25        WD CT                 8C314330
0824 0  7F00        LEADE  DC        /7F00     PATTERNS              8C314340
0825 0  0000               DC        /0000                           8C314350
0826 0  7F00               DC        /7F00                           8C314360
                    *                                                8C314370
                    *              PUNCH TAPE                        8C314380
                    *                                                8C314390
0827 0  0000        PUTAP  DC        0                          SE   8C314400
0828 0  0808        BCK    XIO       SEN55     SENSE                 8C314410
0829 0  1808               SRA       8                               8C314420
082A 00 4C040828           BSC    L  BCK,E     BRANCH = NOT READY    8C314430
082C 0  0809               XIO       PUNK      PUNCH A CHR           8C314440
082D 00 74FF0833           MDX    L  CHOUT,-1  DECR WD CT            8C314450
082F 0  70F8               MDX       BCK       LOOP                  8C314460
0830 00 4C800827           BSC    I  PUTAP     EXIT             SX   8C314470
                    *                                                8C314480
0832    0000               BSS    E  0                               8C314490
0832 0  0000        XIOUT  DC        0         OUTPUT AREA           8C314500
0833 0  0000        CHOUT  DC        0         WD CT                 8C314510
0834 0  0000        SEN55  DC        0         SENSE IOCC            8C314520
0835 0  1F01               DC        /1F01                           8C314530
0836 0  0832        PUNK   DC        XIOUT     PUNCH IOCC            8C314540
0837 0  1900               DC        /1900                           8C314550
0838 0  083A        RDSW   DC        DTSW      RD SWS IOCC           8C314560
0839 0  0240               DC        /0240                           8C314570
083A 0  000D        DTSW   DC        0         SW STORAGE            8C314580
                    *                                                8C314590
                    *              CONVERT AND PUNCH                 8C314600
                    *                                                8C314610
083B 0  6909        HB05   STX    1 EXT+1      SAVE IXING            8C314620
083C 0  6A0A               STX    2 EXT1+1                           8C314630
083D 0  6B11               STX    3 EXT2+1                           8C314640
083E 00 6500FF80           LDX    L1 -80       SET IXING             8C314650
0840 00 C5000230           LD     L1 KEYIN+81  GET A WD              8C314660
0842 00 4C200856           BSC    L  HB05A,Z   BRANCH IF NOT 0       8C314670
0844 00 65000000    EXT    LDX    L1 0         RESTORE IXING         8C31468D
0846 00 66000000    EXT1   LDX    L2 0                               8C314690
0848 00 C4000141           LD     L  BINRY+3   GET CD NO             8C314700
084A 00 F400043D           EOR    L  TERM      CK FOR END CD         8C314710
084C 00 44180817           BSI    L  PPT,+-    PUNCH TRAILER IF END  8C314720
084E 00 67000000    EXT2   LDX    L3 0                               8C314730
0850 0  C0E9               LD        DTSW      GET SWS               8C314740
0851 0  1001               SLA       1                               8C314750
0852 00 4C1009F9           BSC    L  PEDEX,-   BRANCH IF NOT BOTH    8C314760
0854 00 4C0009E7           BSC    L  PEDEN     PUNCH CARD            8C314770
0856 0  1810        HB05A  SRA       16        CLEAP WD CT           8C314780
0857 0  D022               STO       PCAM                            8C314790
0858 0  7101        HB06   MDX    1 1          DECR IX 1             8C314800
0859 0  7001               MDX       HB07      CONTINUE              8C314810
085A 0  7022               MDX       LB06      PUNCH CARD            8C314820
085B 0  6204        HB07   LDX    2 4          SET 4 CHRS            8C314830
085C 0  1004        HB10   SLA       4         MOVE CHR              8C314840
085D 0  D01E               STO       TEMP1     SAVE                  8C314850
085E 00 C5000230           LD     L1 KEYIN+81  GET WD                8C314860
0860 00 4C18087D           BSC    L  LB06,+-   BRANCH IF 0           8C314870
0862 0  6300        HTDB   LDX    3 0          SET COUNTER           8C314880
0863 0  4828               BSC       +Z        IS IT NEG             8C314890
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8K EDIT CONTROL

```
0864 0  7309               MDX    3 9          YES                   8C314900
0865 0  1003               SLA       3         REMOVE ZONE           8C314910
0866 00 4C18086F           BSC    L  HTBZ,+-   BRANCH IF 0           8C314920
0868 0  7301               MDX    3 1          INCR CTR              8C314930
0869 00 4C28086D    HTDB1  BSC    L  HTBX,+Z   BRANCH IF NEG         8C314940
086B 0  1001               SLA       1         MOVE BIT              8C314950
086C 0  70FB               MDX       HTDB1-1   BRANCH                8C314960
086D 0  6B0D        HTBX   STX    3 TEMP       SAVE CT               8C314970
086E 0  C00C               LD        TEMP      GET CT                8C314980
086F 0  E80C        HTBZ   OR        TEMP1     ADD TO SAVED          8C314990
0870 0  7101               MDX    1 1          DECR IX 1             8C315000
0871 0  72FF               MDX    2 -1         DECR IX 2             8C315010
0872 0  70E9               MDX       HB10      LOOP                  8C315020
0873 00 6780087A           LDX    I3 PCAM      SET IX 3              8C315030
0875 00 D7000140           STO    L3 BINRY+2   SAVE                  8C315040
0877 00 7401087A           MDX    L  PCAM,1    INCR LOC              8C315050
0879 0  700E               MDX       HB06      LOOP                  8C315060
                    *                                                8C315070
087A 0  0000        PCAM   DC        0         STORAGE               8C315080
087B 0  0000        TEMP   DC        0                               8C315090
087C 0  0000        TEMP1  DC        0                               8C315100
                    *                                                8C315110
                    *              PUNCH EDIT                        8C315120
                    *                                                8C315130
087D 0  C02C        LB06   LD        H8100     GET E                 8C315140
087E 00 D400013F           STO    L  BINRY+1   SAVE                  8C315150
0880 00 C4000141           LD     L  BINRY+3   GET CD NO             8C315160
0882 00 F400043D           EOR    L  TERM      CK FOR TERM           8C315170
0884 00 4C1808AD           BSC    L  LB08,+-   BRANCH IF TERM        8C315180
0886 00 C4000142           LD     L  BINRY+4   GET NO ENTRIES        8C315190
0888 0  8022               A         FOUR      ADD 4                 8C315200
0889 0  D004               STO       LB0A+1    SAVE                  8C315210
088A 0  1008               SLA       8         MOVE                  8C315220
088B 00 D400013E           STO    L  BINRY     SAVE                  8C315230
088D 00 66000000    LB0A   LDX    L2 0         SET IXING             8C315240
088F 00 6500013E    LB09   LDX    L1 BINRY                           8C315250
0891 0  C100               LD     1 0          GET WD                8C315260
0892 0  D09F               STO       XIOUT     SET                   8C315270
0893 0  C014               LD        ONE       GET 1                 8C315280
0894 00 D400C333           STO    L  CHOUT     SET                   8C315290
0896 0  4090               BSI       PUTAP     PUNCH TAPE       SRC  8C315300
0897 0  7101               MDX    1 1          INCR IX 1             8C315310
0898 0  C100        LB07   LD     1 0          GET WD                8C315320
0899 0  D098               STO       XIOUT     SET                   8C315330
089A 0  C00D               LD        ONE       SET WD CT             8C315340
089B 0  D097               STO       CHOUT                           8C315350
089C 0  408A               BSI       PUTAP     PUNCH TAPE       SRC  8C315360
089D 0  C100               LD     1 0          GET WD                8C315370
089E 0  1008               SLA       8         SET 2ND HALF          8C315380
089F 0  D092               STO       XIOUT     SET                   8C315390
08A0 0  C007               LD        ONE       GET 1                 8C315400
08A1 0  D091               STO       CHOUT     SET WD CT             8C315410
08A2 00 44000827           BSI    L  PUTAP     PUNCH TAPE       SRC  8C315420
08A4 0  7101               MDX    1 1          INCR IX 1             8C315430
08A5 0  72FF               MDX    2 -1         DECR IX 2             8C315440
08A6 0  70F1               MDX       LB07      LOOP                  8C315450
08A7 0  709C               MDX       EXT       EXIT                  8C315460
                    *                                                8C315470
08A8 0  0001        ONE    DC        1         CONSTANTS             8C315480
08A9 0  8000        K8000  DC        /8000                           8C315482
08AA 0  8100        H8100  DC        /8.00                           8C315490
08AB 0  0004        FOUR   DC        4                               8C315500
08AC 0  0300        TREE   DC        /0300                           8C315510
                    *                                                8C315520
08AD 0  C0FE        LB08   LD        TREE      GET 0300              8C315530
08AE 00 D400013E           STO    L  BINRY     SET                   8C315540
08B0 0  6203               LDX    2 3          SET IX 2              8C315550
08B1 0  700D               MDX       LB09      BRANCH                8C315560
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BK EDIT CONTROL

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08B2    0012        PCKBE EBC     .E003 CNTRL-ILLEGAL.                  8C315570
08B8    0006              EBC     . ENTRY.                              8C315580
08BE 0  FFFF        PCKX4 DC      /FFFF                                 8C315590
08BF    0012        PECX9 EBC     .E005 CNTRL-1442 ER.                  8C315600
08CB 0  FFFF        PECX0 DC      /FFFF                                 8C315620
08C9    0012        PECXF EBC     .$$A001 CNTRL-EDIT .                  8C315630
08D2    0007              EBC     .CD LIST.                             8C315640
0806 0  FFFF              DC      /FFFF                                 8C315650
0807    0012        SE002 EBC     .E002 CNTRL-ENTRY T.                  8C315660
08E0    00D8              EBC     .00 LARGE.                            8C315670
08E4 0  FFFF              DC      /FFFF                                 8C315680
08E5    0012        SM2   EBC     .C000 CNTRL-ENTER 2.                  8C315690
08EE    0012              EBC     . DIGIT PID TO BE E.                  8C315700
08F7    0005              EBC     .DITED.                               8C315710
08FA 0  FFFF              DC      /FFFF                                 8C315720
08FB    000F        SM33  EBC     .A002 END OF PRG.                     8C315730
0C03 0  FFFF              DC      /FFFF                                 8C315740
0C04    0012        LEM01 EBC     .E004 CNTRL-FORMAT .                  8C315750
0C00    0002              EBC     .ER.                                  8C315760
0C0E 0  FFFF              DC      /FFFF                                 8C315770
0C0F 0  0000        HLTE  OC      0                          SRC        8C315772
0C10 0  3005        WAIT5 WAIT    5          RELOAD REQUIRED            8C315774
0C11 00 4C800C0F          BSC   I HLTE                       SX         8C315776
0C14    058A              END     START                      8C31577 8C315786
```


BK EDIT CONTROL

CROSS REFERENCE LISTING

```
SYMBOL  VALUE   REFERENCES
8CK     0B28    082A,082F
8GNR    0438
BINRY   013E    05A3,07CC,070A,07E5,07EF,0863,0848,0875,087E,0880,
                0886,088B,088F,08AE
BSAOR   0601    05C0
BSAD1   058B    0597,05B7
BWC     0130    085F,0861,0880,08E6
CHDUT   0833    081A,0820,0894,089B,08A1
CKYN    012D
CKYNE   07A4    012D,07BC,07BE
CKYNO   078E    07A8,07A0
CKYN1   078C    07B2,07B7
CDOE    0566
CP10    0829    0804,0810
DKYB    0842    0136,0844
DONT    0A08    0AC6
DONT1   0A07    0A0C
DTSW    083A    0943,094D,0980,09E0,0838,0B50
END     05E1    05FF
END0    0138
EN01    05CD    013A,0594,0500
ERR     0439
ERR04   060D    05A7
EXIT    0755
EXT     0844    0B3B,0BA7
EXT1    0846    083C
EXT2    084E    083D
FOUR    08AB    0B88
HB05    0B3B    09E2,09E5
HB05A   0856    0842
HB06    085B    0B79
HB07    0858    0B59
HB10    0B5C    0B72
HKYB    084B    0137,0845,0855,0899,08A3
HLT     0585
HLTE    0C0F    0585,0C11
HTBX    086D    0869
HTBZ    086F    0866
HTDB    0862
HTDB1   0B69    0B6C
HB100   0BAA    0870
KAL     0A72    0681
KAQ     0A4C    0615,0659
KBKSP   072C    0725
KC      0A6B
KCHK    0648    0629
KCMA    0A79    06F8
KCOMA   072A    070C
KCR     0AA3    0620,064B
KDEC    060D    0686
KOEC1   06DE    06DC,06E1
KEBC2   0625    0648
KEBC3   062C    064A
KEBC4   062F    0638
KEBC6   0649    063B
KECA0   0A69    0692,06E0
KECGD   0A46    060B,060D,06E0
KEC00   0A5E    0684,06DD,0908,09D0,0A18
KECPD   0A5B    0699,0603
KENDK   0A71    0733
KERR    0757    06A2,06C2,0700,0730,073A,074E
KERR1   075F    0767
KERSE   0A70    0713
KEY     012C    059F,05E1,07F9,0939,09A8,09AE,09FC,0A03,0A31
KEYE    0611    012C,061B,061C,064F,065C,065E,0661
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8K EDIT CONTROL

KEYFM	0753	0665,068A
KEYIN	010F	066F,07A5,07AA,07AF,0784,08A9,093F,0960,0968,098C, 09C4,09D2,09E7,09EA,0A0F,0A16,0A33,0A54,0B40,085E
KEYNO	0754	0669,0739
KEYOG	0668	076C
KEYO	0671	0600,060F,0710,0719,071C,0728,0735,0760,076A
KEY1	0675	0670
KEY2	0677	067F
KEY3	0680	067A
KEY96	0653	0612,0755
KEY97	0655	0613
KEY98	0657	0614
KEY99	0658	0617
KFELO	0AA4	0758
KFMO	06A7	068E,0698
KFM01	06A8	06AE
KFM02	06B0	06B6
KFMS	0682	
KFMS1	0683	0689
KFM2	0690	
KFM21	0691	0697
KFRM	0660	0651
KHEX	06E0	0694
KINO	0838	0135,0840
KINI	0820	0134,0836
KIWC	010E	066D,06F1,06FC,0706,0717,0722,0737,073C,073E,0742, 0748,075C,0765,0768,0832,083C,0A11,0A27,0A29,0A2F, 0A0F
KL	0A4B	0688
KLRT	0A7F	06C7
KMOX	06D2	06AB
KMPX	06DB	0683,0605
KMSG	0A46	061A,0625,062F,0646,0A47
KN	0A57	06A9,06DB
KNBY	076F	0673,0786,078F,0795
KNBY0	0775	0780
KNBY1	0777	0770
KNBY4	0787	0781
KNBY5	078B	0770,077A
KNEG	076E	074F,0762
KONE	0A56	0627,063C,068C,06C9,06EA,0709
KOUT	0A47	061E,0640,0644,06C8,06EC
KPCO	0A52	0675
KPNE	06C9	06A6
KPRT	0A50	0793,079D
KROY	CA4E	078D,0796,0A50
KREO	0A54	0671,0680,0683,0683,0691,0691,0698,0698,0732,0732
KRENT	0A6F	072E
KSNS	0A44	0677,0777
KSPC	06F6	06BA
KSPCA	073E	0745
KSPCE	074F	0748,074D
KSPC2	0709	0704
KSPC5	0712	06FA
KSPC6	0725	071F
KSPC9	0720	0715
KSTO	06E2	06DE,06E6,06F4
KTALT	0A9D	
KTGLT	0A7A	062C,06E8
KTILT	0A93	0586,0A1F
KTIME	0791	0773,077E
KTOLT	0A92	
KTPLT	0ABF	06A4
KTYP	0792	0584,0642,0640,06CE,06EF,070E,0727,075A,07A0
KTYPS	0584	
KTYP1	0793	07A3
KTYP5	0796	079C
KTYP6	079D	0799

8K EDIT CONTROL

KY	0A58	
K00FF	0610	05A5
K0002	07E3	050A,06FE,07C6
K0003	082C	081F
K0004	0A4A	
K1048	0602	058C
K8000	0BA9	06AD,06C0
KB120	0ABC	
LBGNR	0AFE	043B,0AE9,0B10
LB0A	0B80	0B89
LB06	0B70	085A,0B60
LB07	0B98	0BA6
LB08	0BAD	0B84
LB09	0BBF	0B81
LCHBO	0B08	0B07
LCHBW	0B02	0AFF
LODIT	0ACA	0751,0ACE,0A07,0A09
LOO1	0AF1	0AF0
LEADE	0B24	0B1B
LEM01	0C04	
LERR	CAEB	0439,0AF9
LGROP	043F	0ACC
LMTRM	0AF7	043B,0AF3,0AF8
LRAIT	0AC6	0A05
LRTF1	0B06	0AC7,0B0D
LRTF2	0AFE	0ACB,0B04
LTERM	0AF0	0AF8
LTRFX	0B0F	043C,0B08,0B15
LWC	043E	0AE2,0AE4,0AE7
LWCC	0AEF	043A,0AF5,0B14
LWCLO	0A03	0A02
LWKA	0AC9	0A01,0B11
MTRM	043B	
NO	07C2	07B1
NOEN	082A	0805,080E,0814,0820
NO1	07C3	07B6
NTPT	0952	094A,0964
ONE	0BA8	0B93,0B9A,0BA0
P81HX	09C6	0974,097C,0997,0990,099F,0900
P81X2	0A60	096E
PB1Y1	0909	09C8
PB1Y2	090B	09C9
PB1Y3	09CB	0907
PCAM	0B7A	0B57,0B73,0B77
PCKB	0900	086E,0903,0926,092A
PCKBA	092C	0902,090A,0914,0918
PCKBB	0920	0924,0925
PCKBE	0BB2	07BB,08F1,0921,0AEE
PCKBX	0928	0901,0916,091E
PCKB1	0906	0905,090E
PCKB3	0922	0908
PCKB4	091F	0912,091A
PCKX1	092E	0883,0802,0911
PCKX2	092F	0915
PCKX3	0930	0919
PCKX4	0BBE	091C
PDKWA	08F2	08B1,08C7,08CB,0BDE,08E4,08E9,08EB
POKX1	08F7	0848,08CF
POKX2	08F6	08C1
POKX3	08FF	0808
POKX4	08F4	08EC
POKYA	08EB	080B
POKY8	0136	0809
POKYE	08EF	08B5,0804
POKYF	08DC	08E0
POKYH	08CE	08C4
POKYJ	08C5	0800
POKY1	08B0	0878

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PDKY2   0889    0888
PDKY3   08C0    08CC
PDKY6   0801    08CD
PDKY7   08E0    0806
PDKY8   08E9    08D9,08E1
PDKY9   08E5    08EA
PECOR   0931    09F4,0993
PECOS   0991    0934
PECXC   098A    0984,09EF
PECXO   08C8    0976,097A
PECXE   0989    0996,09A1
PECXF   08C9    0939
PECX1   0986    0932,0992
PECX3   0988    0996
PECX4   098C    0955
PECX5   098E    0952,0956,0986,09FC,09FI,09F8
PECX6   09C0    095D,098A,0982,09F8,0A02
PECX7   09C2    0985
PECX8   09C4    09F0
PECX9   08BF    09AA,0980,09FE,0A05
PECYA   0968    0968
PECYB   0995    0978
PECYC   0986    0988
PECYO   099E    09A3
PECYE   0966    0950
PECYF   0936
PECY1   0988    0936,0982
PECY2   0980    0937
PECY3   098F    0938
PECY4   0956    0958
PECY5   0960    0963
PECY6   09AB    0953
PECY7   0941    09AD,0984
PECY8   09AE    095B
PEO     090F    097D,09A4,09F9
PEDEN   09E7    0854
PEOEX   09F9    0852
PEOX1   0A09    09E9
PEDY1   09FB    09ED
PEOY2   09F1    09F3
PEDY3   0A02    09F6
PEOY4   09EC    0A01,0A08
PHOSW   08AF    0846,084E,0876
PHKX1   08A6    0843,084C,08A2
PHKX2   08A8    0859,0867,0868,0879,0882,088F,0882,088D,08D1,08D7,
                090F
PHKX3   08A9    085C
PHKX4   08AA    085D,0869,089I,0892,0893
PHKX5   08A8    0890,08B7
PHKX6   08AC    0896
PHKX7   08A0    084D
PHKX8   08AE    084F
PHKY8   0137    0800
PHKYC   0870    0850
PHKYO   0850    084A
PHKYF   0888    08DF
PHKYH   08BF    08E8
PHKYS   08A1    0851
PHKYI   0871    0865,0888,08DC
PHKY2   0860    0875
PHKY3   087C    0866,0880
PHKY4   0884    0889
PHKY5   0861    0898
PHKY6   089B    0852
PHKY7   0890    0853
PHKY8   089F    0854
PHKY9   0888    0886,0887
PPECO   0A0A    097E,09A5,0A3C
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PPEX2   0A41    0A28
PPEX3   0A42    0A0E,0A35
PPEY1   0A1F    0A18
PPEY2   0A16    0A1E
PPEY3   0A3E    0A24,0A2C
PPEY4   0A15    0A3F
PPEY5   0A36    0A08
PPEY6   0A38    0A0C
PPEY7   0A3A    0A00
PPEY8   0A2E    0A40
PPT     0817    0948,0821,084C
PPT1    0B18
PPT1A   0B19    0B20
PT      0948    0945,0948,09A7
PUNK    0B36    0B2C
PUTAP   0B27    0B1E,0B30,0896,089C,08A2
RDSK    0ABE    0138,05AA,0AC3
RDSK1   0AC3    0AC5
RDSW    0B38    0941
RDSX0   0AC5    0ABF
RLFT    05C6    05C3
RLFT1   05D2    0501
RLFT2   050F    050C
RLT8L   0603    05C1,05CF,05D8
SCH     0131
SCHE    07E4    0131,07F1
SCHER   07EB    07E8
SCH1    07EF    07E9,07EA,07EC
SECB    0828    08D3,0812
SECSE   07FF    0133,0800,0823,0825
SECSU   0133
SEIB    0442    05FB,082B,093D
SEN55   0B34    0828
SER     0132    0600,07B9,07D3,08EF,091F,0AEC
SERE    07F5    0132,07F6
SER1    07FB    07F8
SE002   0B07    060F,0705
SE1     0803
SE2     080C    0809
SE3     0817    081C
SIA     07E0
SIL     012F
SILE    07CB    012F,07D6
SILER   07D3    0700,07DE,07EE
SILSE   07D9    0130,07F0
SILSW   0130
SIL1    07D6    07D1,0702
SIWB    0827    0802,080A
SKINA   0832    0835
SKIN8   083C    083F
SKINO   0135
SKIN1   0134    0668
SKI1    0CI7    012C,05AF,05EE
SKI2    0C18    012C
SKI3    0C19    012C
SKI4    0C1A    05CA
SM2     0BE5    05A1
SM33    0BFB    05F3
SRST    0588    059A,05AC
SRTRY   0441    07C7,07FD
SSEUR   07C4
SSUEE   07C4    012F,07C5,07C9,07CB
SSUER   012E    059D
STARI   058A    0C13
START   0590    0588,05E6
STBF    0440    0595,05E7,05F7,0807,081D,0821
STBF1   0828    05F9,0806
STTR    05FB    05FE
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8K EDIT CONTROL

STTRM	05E7	05D6
SVIX3	058C	0593,0582,05C5
S00F0	07E2	0700
S000F	07F3	07EB
S0008	07F4	07E7
SI700	0708	07CF
S2	013A	
S2E	05AA	05BA,05CC
TEMP	0B7B	0B60,0B6E
TEMP1	0B7C	0B50,0B6F
TERM	043D	05C8,05D4,05F1,0B30,0B4A,0B82
TREE	0BAC	0BA0
TREX	043C	
WAIT1	079B	3001
WAIT2	07B5	3002
WAIT3	09AC	3003
WAIT4	0933	3004
WAIT5	0C10	3005
WAIT6	0A00	3006
WAIT7	0A07	3007
WAIT8	05E5	3008
WCC	043A	
WOCT	0B23	0B19
XIOUT	0B32	0B1D,0B36,0392,0B99,0B9F
XPID	0600	05A9,05B1
YES	07C0	07A7
YES1	07C1	07AC
ZERO	0437	0803,080C

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0000                    ORG     *+3095                                   C4010001
012C             KEY    EQU     300                                      C4010002
012D             CKYN   EQU     KEY+1                                    C4010003
012E             SSUER  EQU     CKYN+1                                   C4010004
012F             SIL    EQU     SSUER+1                                  C4010005
0130             SILSW  EQU     SIL+1                                    C4010006
0131             SCH    EQU     SILSW+1                                  C4010007
0132             SER    EQU     SCH+1                                    C4010008
0133             SECSU  EQU     SER+1                                    C4010009
0134             SKIN1  EQU     SECSU+1                                  C4010010
0135             SKINO  EQU     SKIN1+1                                  C4010011
0136             POKYB  EQU     SKINO+1                                  C4010012
0137             PHKYB  EQU     POKYB+1                                  C4010013
0138             ENDO   EQU     PHKYB+1                                  C4010014
013A             S2     EQU     ENDO+2                                   C4010015
013E             BINRY  EQU     S2+4                                     C4010016
01DF             KEYIN  EQU     BINRY+161                                C4010017
0437             ZERO   EQU     KEYIN+600                                C4010018
0438             BGNR   EQU     ZERO+1                                   C4010019
0439             ERR    EQU     BGNR+1                                   C4010020
043A             WCC    EQU     ERR+1                                    C4010021
043B             MTRM   EQU     WCC+1                                    C4010022
043C             TRFX   EQU     MTRM+1                                   C4010023
043D             TERM   EQU     TRFX+1                                   C4010024
043E             LWC    EQU     TERM+1                                   C4010025
043F             LGROP  EQU     LWC+1                                    C4010026
0440             STBF   EQU     LGRDP+1                                  C4010027
0441             SRTRY  EQU     STBF+1                                   C4010028
0C17 0  0001     SKI1   DC      /0001     PID                            C4010029
0C18 0  0000     SKI2   DC      /0000     CD NUMBER                      C4010030
0C19 0  0002     SKI3   DC      /0002     NUMBER OF ENTRIES              C4010031
0C1A 00 4480012E SKI4   BSI  I  SSUER     SET ERROR RETURN      SRC      C4010032
0C1C 00 4480012C        BSI  I  KEY       ENTER CONS IL         SRC      C4010033
0C1E 1  0C70            DC      SM1       MSG ADRS                       C4010034
0C1F 0  8120            DC      /8120     KYBD-FRM 1-2 DIGITS            C4010035
                 *                                                       C4010036
0C20 00 4480012F        BSI  I  SIL       CK LVL                SRC      C4010037
0C22 01 D4000034        STD  L  SWB1      STORE                          C4010038
                 *                                                       C4010039
0C24 00 4480012E        BSI  I  SSUER     SET ERROR RETURN      SRC      C4010040
0C26 00 4480012C        BSI  I  KEY       ENTER CONS ILSW       SRC      C4010041
0C28 1  0C95            DC      SM2       MSG AORS                       C4010042
0C29 0  8120            DC      /8120                                    C4010043
                 *                                                       C4010044
0C2A 00 44800130        BSI  I  SILSW     CK ILSW               SRC      C4010045
0C2C 01 D4000035        STD  L  SWB2      STORE                          C4010046
                 *                                                       C4010047
0C2E 01 C400003A        LD   L  S000F     SET CH = F                     C4010048
0C30 01 D4000036        STD  L  SWB3      STORE                          C4010049
                 *                                                       C4010050
                 *                                                       C4010051
0C32 00 4480012E        BSI  I  SSUER     SET ERROR RETURN      SRC      C4010052
0C34 00 4480012C        BSI  I  KEY       ENTER DTPT DV IL      SRC      C4010053
0C36 1  0CB9            DC      SM3       MSG ADRS                       C4010054
0C37 0  8120            DC      /8120     KYBD-FORM 1-2 DIGITS           C4010055
                 *                                                       C4010056
0C38 00 4480012F        BSI  I  SIL       CK IL                 SRC      C4010057
0C3A 01 D4000037        STD  L  SWB4      STORE                          C4010058
                 *                                                       C4010059
0C3C 00 4480012E        BSI  I  SSUER     SET ERROR RETURN      SRC      C4010060
0C3E 00 4480012C        BSI  I  KEY       ENTER OTPO DV ILSW             C4010061
0C40 1  0CE1            DC      SM4       MSG ADRS                       C4010062
0C41 0  8120            DC      /8120                                    C4010063
                 *                                                       C4010064
0C42 00 44800130        BSI  I  SILSW     CK ILSW               SRC      C4010065
0C44 01 D4000038        STD  L  SWB5      STORE                          C4010066
                 *                                                       C4010067
0C46 00 4480012E        BSI  I  SSUER     SET ERROR RETURN      SRC      C4010068
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0C48 00 4480012C        BSI  I  KEY       ENTER DTPT DV CH      SRC      C4010069
0C4A 1  0006            DC      SM5       MSG ADRS                       C4010070
0C4B 0  8010            DC      /8010                                    C4010071
0C4C 00 C40001DF        LD   L  KEYIN                                    C4010072
0C4E 01 4C280C6D        BSC  L  SK1,+Z                                   C4010073
0C50 00 44800136        BSI  I  POKYB                                    C4010074
0C52 0  0001            DC      1                                        C4010075
0C53 0  0437            DC      ZERO                                     C4010076
                 *                                                       C4010077
0C54 00 44800131        BSI  I  SCH       CK CH                 SRC      C4010078
0C56 01 D4000039 SK2    STD  L  SWB6                                     C4010079
                 *                                                       C4010080
                 *                                                       C4010081
0C58 01 65000034        LDX  L1 SWB1                                     C4010082
0C5A 0  C100            LD    1 0         BUILD CONS DDEF                C4010083
0C5B 0  F101            EOR   1 1                                        C4010084
0C5C 0  F102            EOR   1 2                                        C4010085
0C5D 0  D100            STO   1 0                                        C4010086
                 *                                                       C4010087
0C5E 0  C103            LD    1 3         BUILD OTPUT DEV DDEF           C4010088
0C5F 0  F104            EOR   1 4                                        C4010089
0C60 0  F105            EOR   1 5                                        C4010090
0C61 0  D101            STO   1 1                                        C4010091
                 *                                                       C4010092
0C62 01 66800C18        LDX  12 SKI2      SET IXING                      C4010093
0C64 01 65800C17        LDX  11 SKI1                                     C4010094
0C66 01 67800C19        LDX  13 SKI3                                     C4010095
                 *                                                       C4010096
0C68 00 44800133        BSI  I  SECSU     GO SET CO             SRC      C4010097
0C6A 1  0034            DC      SWB1      AORS OF ENTRYS                 C4010098
0C6B 00 4C00013A        BSC  L  S2        GET NEXT SKELTON               C4010099
0C6D 01 C400003A SK1    LD   L  S000F                                    C4010100
0C6F 0  70E6            MDX     SK2                                      C4010101
                 *                                                       C4010102
0C70    0012     SM1    EBC     .C001  PID 01-CD 00.                     C4010103
0C79    0012            EBC     .  ENTER 2 DIGIT DE.                     C4010104
0C82    0012            EBC     .CIMAL INTRPT LVL F.                     C4010105
0C8B    0C11            EBC     .OR CONSOLE INTRPT.                      C4010106
0C94 0  FFFF            DC      /FFFF                                    C4010107
                 *                                                       C4010108
0C95    0012     SM2    EBC     .C002  PIO 01-CD 00.                     C4010109
0C9E    0012            EBC     .  ENTER 2 DIGIT OE.                     C4010110
0CA7    0012            EBC     .CIMAL ILSW BIT FUR.                     C4010111
0CB0    000F            EBC     . CONSOLE INTRPT.                        C4010112
0CB8 0  FFFF            DC      /FFFF                                    C4010113
                 *                                                       C4010114
0CB9    0012     SM3    EBC     .C001  PID 01-CD 0C.                     C4010115
0CC2    0012            EBC     .  ENTER 2 OIGIT OE.                     C4010116
0CCB    0012            EBC     .CIMAL INTRPT LVL F.                     C4010117
0CD4    0012            EBC     .OR DESIRED OUTPUT .                     C4010118
0CDD    0006            EBC     .OEVICE.                                 C4010119
0CE0 0  FFFF            DC      /FFFF                                    C4010120
                 *                                                       C4010121
0CE1    0012     SM4    EBC     .C002  PID 01-CD 00.                     C4010122
0CEA    0012            EBC     .  ENTER 2 DIGIT OE.                     C4010123
0CF3    0012            EBC     .CIMAL ILSW BIT FOR.                     C4010124
0CFC    0012            EBC     . OESIRED OUTPUT DV.                     C4010125
0D05 0  FFFF            DC      /FFFF                                    C4010126
                 *                                                       C4010127
0D06    0012     SM5    EBC     .C003  PID 01-CO 00.                     C4010128
0D0F    0012            EBC     .  ENTER 1 OIGIT DE.                     C4010129
0D18    0012            EBC     .CIMAL CH FOR OESIR.                     C4010130
0D21    0012            EBC     .ED OPTPT DV-IF 105.                     C4010131
0D2A    0011            EBC     .3 OR 1816-ENTER F.                      C4010132
0D33 0  FFFF            DC      /FFFF                                    C4010133
0D34 0  0000     SWB1   DC      0                                        C4010134
0D35 0  0000     SWB2   DC      0                                        C4010135
0D36 0  0000     SWB3   DC      0                                        C4010136
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0037 0  0000        SWB4  DC      0                        C4010137
0038 0  0000        SWB5  DC      0                        C4010138
0039 0  0000        SWB6  DC      0                        C4010139
003A 0  000F        S000F DC      /000F                    C4010140
003B 00 4C000138    EN01  BSC   L ENO0                     C4010141
003E    003B              ENO     EN01               C401014 C4010151
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	0120	0C17
ENO0	0138	0C17,0038
EN01	0038	0030
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C34,0C3E,0C48
KEYIN	010F	0C17,0C4C
LGROP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
POKYB	0136	0C17,0C50
PHKYB	0137	0C17
SCH	0131	0C17,0C54
SECSU	0133	0C17,0C68
SER	0132	0C17
SIL	012F	0C17,0C20,0C38
SILSW	0130	0C17,0C2A,0C42
SKIN0	0135	0C17
SKIN1	0134	0C17
SK11	0C17	0C64
SK12	0C18	0C62
SK13	0C19	0C66
SK14	0C1A	
SK1	0C60	0C4E
SK2	0C56	0C6F
SM1	0C70	0C1E
SM2	0C95	0C28
SM3	0C89	0C36
SM4	0CE1	0C40
SM5	0006	0C4A
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C32,0C3C,0C46
STBF	0440	0C17
SWB1	0034	0C22,0C58,0C6A
SWB2	0035	0C2C
SWB3	0036	0C30
SWB4	0037	0C3A
SWB5	0038	0C44
SWB6	0039	0C56
S000F	003A	0C2E,0C60
S2	013A	0C17,0C6B
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17,0C53

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000D                      ORG     *+3095                                C4011001
012C               KEY    EQU     300                                   C4011002
012D               CKYN   EQU     KEY+1                                 C4011003
012E               SSUER  EQU     CKYN+1                                C4011004
012F               SIL    EQU     SSUER+1                               C4011005
0130               SILSW  EQU     SIL+1                                 C4011006
0131               SCH    EQU     SILSW+1                               C4011007
0132               SER    EQU     SCH+1                                 C4011008
0133               SECSU  EQU     SER+1                                 C4011009
0134               SKINI  EQU     SECSU+1                               C4011010
0135               SKINO  EQU     SKINI+1                               C4011011
0136               POKY8  EQU     SKINO+1                               C4011012
0137               PHKY8  EQU     POKY8+1                               C4011013
0138               ENOO   EQU     PHKY8+1                               C4011014
013A               S2     EQU     ENOO+2                                C4011015
013E               BINRY  EQU     S2+4                                  C4011016
01DF               KEYIN  EQU     BINRY+161                             C4011017
0437               ZERO   EQU     KEYIN+600                             C4011018
0438               BGNR   EQU     ZERO+1                                C4011019
0439               ERR    EQU     BGNR+1                                C4011020
043A               WCC    EQU     ERR+1                                 C4011021
043B               MTRM   EQU     WCC+1                                 C4011022
043C               TRFX   EQU     MTRM+1                                C4011023
043D               TERM   EQU     TRFX+1                                C4011024
043E               LWC    EQU     TERM+1                                C4011025
043F               LGROP  EQU     LWC+1                                 C4011026
0440               ST8F   EQU     LGROP+1                               C4011027
0441               SRTRY  EQU     ST8F+1                                C4011028
0C17 0  0001       SKI1   DC      /0001      PID                        C4011029
0C18 0  0001       SKI2   DC      /0001      CO NO                      C4011030
0C19 0  0000       SKI3   DC      /0000      NO ENTRIES                 C4011031
0C1A 00 4480012E   SKI4   BSI  I  SSUER      SET ERROR RETURN    SRC    C4011032
0C1C 0  611E              LDX  1  30                                    C4011033
0C1D 00 C400043D          LD   L  TERM       CLEAR BINRY AREA           C4011034
0C1F 00 0500013D   SKO    STO  L1 BINRY-1                               C4011035
0C21 01 05000C02          STO  L1 SWB1-1                                C4011036
0C23 0  71FF              MDX  1  -1                                    C4011037
0C24 0  70FA              MDX     SKO                                   C4011038
0C25 0  1010              SLA     16         CLEAR WD CT                C4011039
0C26 0  00F2              STO     SKI3                                  C4011040
0C27 00 4480012C          BSI  I  KEY        ENTER INTR LVL      SRC    C4011041
0C29 1  0CAD              DC      SM2                                   C4011042
0C2A 0  8120              DC      /8120                                 C4011043
0C2B 00 C4000130          LD   L  BINRY-1    GET WD CT                  C4011044
0C2D 0  D0E8              STO     SKI3       SET                        C4011045
0C2E 01 66000CD3          LDX  L2 SWB1       SET IXING                  C4011046
0C30 00 6500013E          LDX  L1 BINRY                                 C4011047
0C32 00 C5000000   SKI6   LD   L1 0          GET A WD                   C4011048
                   *                                                    C4011049
0C34 00 4480012F          BSI  I  SIL        CK IL               SRC    C4011050
0C36 0  1808              SRA     8                                     C4011051
0C37 0  0200              STO  2  0          SAVE                       C4011052
0C38 0  C101              LD   1  1          GET WD                     C4011053
0C39 00 0400013E          STO  L  BINRY      SET AS 1ST                 C4011054
0C3B 0  7201              MDX  2  1          INCR IX 2                  C4011055
0C3C 0  7101       SKI5   MDX  1  1          INCR IX 1                  C4011056
0C3D 00 74FF013D          MDX  L  BINRY-1,-1 DECR WD CT                 C4011057
0C3F 0  70F2              MDX     SKI6       LOOP                       C4011058
0C40 01 C4000C19   SKI7   LD   L  SKI3       GET NO ENTRIES             C4011059
0C42 01 84000C02          CMP  L  S000D      CK FOR MAX                 C4011060
0C44 0  7026              MDX     SKER       ERROR                      C4011061
0C45 0  1000              NOP                                           C4011062
                   *                                                    C4011063
0C46 01 66000CD3          LDX  L2 SWB1       SET IXING                  C4011064
0C48 0  6A16              STX  2  TEMP       *                          C4011065
0C49 01 74010C5F          MDX  L  TEMP,1     *                          C4011066
0C4B 01 65800C5F   SK1    LDX  I1 TEMP       *                          C4011067
0C4D 0  C200       SK2    LD   2  0          GET ENTRY                  C4011068
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0C4E 01 4C280C60          BSC  L  OUT,+Z     BRANCH IF TERM             C4011069
0C5D D  C100              LD   1  0          GET ENTRY                  C4011070
0C51 01 4C280C58          BSC  L  SK3,+Z     BRANCH IF TERM             C4011071
0C53 0  F200              EOR  2  0          CK FOR DUPLICATE           C4011072
0C54 01 4C180C5C          BSC  L  SKER2,+-   BRANCH IF ERROR            C4011073
0C56 0  7101              MDX  1  1          INCR IX 1                  C4011074
0C57 0  70F5              MDX     SK2        LOOP                       C4011075
                   *                                                    C4011076
0C58 0  7201       SK3    MDX  2  1          INCR IX 2                  C4011077
0C59 01 74010C5F          MDX  L  TEMP,1     *                          C4011078
0C5B 0  70EF              MDX     SK1        LOOP                       C4011079
                   *                                                    C4011080
0C5C 00 44800132   SKER2  BSI  I  SER        DUPLICATE LVLS      SRC    C4011081
0C5E 1  0C85              DC      SE001                                 C4011082
                   *                                                    C4011083
0C5F 0  0000       TEMP   DC      0                                     C4011084
0C60 01 66800C18   OUT    LDX  I2 SKI2       SET IXING                  C4011085
0C62 01 65800C17          LDX  I1 SKI1                                  C4011086
0C64 01 67800C19          LDX  I3 SKI3                                  C4011087
                   *                                                    C4011088
0C66 00 44800133          BSI  I  SECSU      GO SET CARD         SRC    C4011089
0C68 1  0C03              DC      SWB1                                  C4011090
0C69 00 4C00013A          BSC  L  S2         EXIT                       C4011091
0C6B 00 44800132   SKER   BSI  I  SER        GO PRINT ERROR      SRC    C4011092
0C6D 1  0C6E              DC      SE000      ADRS OF MSG                C4011093
                   *                                                    C4011094
                   *                                                    C4011095
0C6E    0012       SE000  EBC     .E010  PIO 01-CD 00.                  C4011096
0C77    0012              EBC     .  IMPROPER NUMBER .                  C4011097
0C80    0007              EBC     .  OF NOS.                            C4011098
0C84 0  FFFF              DC      /FFFF                                 C4011099
                   *                                                    C4011100
0C85    0012       SE001  EBC     .E006  PID 01-CD 01.                  C4011101
0C8E    0012              EBC     .  2 OR MORE ENTRIE.                  C4011102
0C97    000F              EBC     .S ARE IDENTICAL.                     C4011103
0C9F 0  FFFF              DC      /FFFF                                 C4011104
                   *                                                    C4011105
0CA0    0012       SM2    EBC     .C001  PID 01-CD 00.                  C4011106
0CA9    0012              EBC     .  ENTER A 2 DIGIT .                  C4011107
0CB2    0012              EBC     .DECIMAL NUMBER FOR.                  C4011108
0CBB    0012              EBC     .  EACH INTERRUPT LE.                 C4011109
0CC4    0012              EBC     .VEL TO BE RUN, 1-1.                  C4011110
0CCD    0007              EBC     .2 LINES.                             C4011111
0CD1 0  FFFF              DC      /FFFF                                 C4011112
                   *                                                    C4011113
0CD2 0  000C       S000D  DC      /000C                                 C4011114
0CD3 0  0000       SWB1   DC      0             ENTRY STORAGE           C4011115
0CD4    001D              BSS     29                                    C4011116
0CF1 00 4C000138   END1   BSC  L  ENOO                                  C4011117
0CF4    0CF1              END     END1                          C401111 C4011127
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17, 0C1F, 0C28, 0C30, 0C39, 0C3D
CKYN	012D	0C17
ENDO	013B	0C17, 0CF1
ENO1	0CF1	0CF3
ERR	0439	0C17
KEY	012C	0C17, 0C27
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
OUT	0C60	0C4E
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17, 0C66
SER	0132	0C17, 0C5C, 0C6B
SE000	0C6E	0C6D
SE001	0C85	0C5E
SIL	012F	0C17, 0C34
SILSW	0130	0C17
SKER	0C6B	0C44
SKER2	0C5C	0C54
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C62
SKI2	0C18	0C60
SKI3	0C19	0C26, 0C2D, 0C40, 0C64
SKI4	0C1A	
SKI5	0C3C	
SKI6	0C32	0C3F
SKI7	0C40	
SKO	0C1F	0C24
SK1	0C4B	0C5B
SK2	0C40	0C57
SK3	0C5B	0C51
SM2	0CA0	0C29
SRTRY	0441	
SSUER	012E	0C17, 0C1A
STBF	0440	0C17
SWB1	0C03	0C21, 0C2E, 0C46, 0C6B
S0000	0C02	0C42
S2	013A	0C17, 0C69
TEMP	0C5F	0C48, 0C49, 0C4B, 0C59
TERM	043D	0C17, 0C1D
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                    ORG     **3095                          C4012001
012C                KEY EQU     300                             C4012002
0120                CKYN EQU    KEY+1                           C4012003
012E                SSUER EQU   CKYN+1                          C4012004
012F                SIL EQU     SSUER+1                         C4012005
0130                SILSW EQU   SIL+1                           C4012006
0131                SCH EQU     SILSW+1                         C4012007
0132                SER EQU     SCH+1                           C4012008
0133                SECSU EQU   SER+1                           C4012009
0134                SKIN1 EQU   SECSU+1                         C4012010
0135                SKINO EQU   SKIN1+1                         C4012011
0136                POKYB EQU   SKINO+1                         C4012012
0137                PHKYB EQU   POKYB+1                         C4012013
013B                ENDO EQU    PHKYB+1                         C4012014
013A                S2 EQU      ENDO+2                          C4012015
013E                BINRY EQU   S2+4                            C4012016
01DF                KEYIN EQU   BINRY+161                       C4012017
0437                ZERO EQU    KEYIN+600                       C4012018
0438                BGNR EQU    ZERO+1                          C4012019
0439                ERR EQU     BGNR+1                          C4012020
043A                WCC EQU     ERR+1                           C4012021
043B                MTRM EQU    WCC+1                           C4012022
043C                TRFX EQU    MTRM+1                          C4012023
0430                TERM EQU    TRFX+1                          C4012024
043E                LWC EQU     TERM+1                          C4012025
043F                LGROP EQU   LWC+1                           C4012026
0440                STBF EQU    LGROP+1                         C4012027
0441                SRTRY EQU   STBF+1                          C4012028
0C17 0  0001        SKI1 DC     /0001       PIO                 C4012029
0C18 0  0002        SKI2 DC     /0002       CD NO               C4012030
0C19 0  0000        SKI3 DC     /0000       NO ENTRIES          C4012031
0C1A 00 C4000440    SKI4 LD  L  STBF        GET DISPL           C4012032
0C1C 01 04000CEC        STO  L  TEMP        SAVE                C4012033
0C1E 00 4480012E        BSI  I  SSUER       SET ERROR RETURN    SRC C4012034
0C20 01 C4000CEC        LO   L  TEMP        GET DISPL           C4012035
0C22 00 D4000440        STO  L  STBF        SET                 C4012036
0C24 01 84000CED        A    L  K0003       AOD 3               C4012037
0C26 01 84000CEE        A    L  CNST        ADD ADRS            C4012038
0C28 01 04000C82        STO  L  SM0-1       SET                 C4012039
0C2A 01 D4000C2D        STO  L  SN0+1       SET                 C4012040
0C2C 00 67000000    SN0 LOX  L3 0                               C4012041
0C2E 00 C4000430    SN1 LD   L  TERM        SET ENTRIES TO TERM C4012042
0C30 00 07000000        STO  L3 0                               C4012043
0C32 0  7301            MDX  3  1                               C4012044
0C33 01 6F000CF0        STX  L3 SN2                             C4012045
0C35 01 C4000CF1        LD   L  ADRS                            C4012046
0C37 01 F4000CF0        EOR  L  SN2                             C4012047
0C39 01 4C200C2E        BSC  L  SN1,Z                           C4012048
0C3B 01 C4000CEF        LD   L  K0002       GET 2               C4012049
0C3D 0  D0DA            STO     SKI2        SET CO NO           C4012050
0C3E 0  1010            SLA     16                              C4012051
0C3F 01 D4000D5A        STO  L  WDCT        CLEAR COUNTS        C4012052
0C41 01 04000D5B        STO  L  WDCT1                           C4012053
0C43 0  00D5            STO     SKI3        CLEAR ENTRY CT      C4012054
0C44 00 4480012C        BSI  I  KEY         IL ILSW CH AC MOD,  SRC C4012055
0C46 1  0DA7            DC      SM1                             C4012056
0C47 0  B030            DC      /B030                           C4012057
0C48 00 C40001DE        LD   L  KEYIN-1     GET WD CT           C4012058
0C4A 0  B036            CMP     S0560       COMP AGAINST 560    C4012059
0C4B 0  7032            MDX     SKER1       ERRGR               C4012060
0C4C 0  1000            NOP     0                               C4012061
0C4D 00 650001DF        LDX  L1 KEYIN       CK ENTRIES FOR      C4012062
0C4F 0  C102        SKA1 LD   1 2           *CORRECT FORMAT     C4012063
0C50 0  4B20            BSC     Z                               C4012064
0C51 0  7010            MDX     SKA2                            C4012065
0C52 0  C105            LO   1  5                               C4012066
0C53 0  4B20            BSC     Z                               C4012067
0C54 0  7000            MDX     SKA2                            C4012068
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0C55 0  C107            LD     1 7                               C4012069
0C56 0  4820            BSC      Z                               C4012070
0C57 0  700A            MDX      SKA2                            C4012071
0C58 0  C10A            LD     1 10                              C4012072
0C59 0  4820            BSC      Z                               C4012073
0C5A 0  7007            MDX      SKA2                            C4012074
0C5B 0  C10D            LD     1 13                              C4012075
0C5C 01 4C180C64        BSC  L   SKA3,+-                         C4012076
0C5E 00 F400043D        EOR  L   TERM                            C4012077
0C60 01 4C180C66        BSC  L   SKA7,+-                         C4012078
0C62 01 4C000043  SKA2  BSC  L   SKER2                           C4012079
0C64 0  710E      SKA3  MDX    1 14                              C4012080
0C65 0  70E9            MDX      SKA1                            C4012081
                  *                                              C4012082
0C66 00 650001DF  SKA7  LDX  L1 KEYIN     SET IXING              C4012083
0C68 01 66000DEA        LDX  L2 SW8I                             C4012084
0C6A 0  6305      SK6   LDX    3 5                               C4012085
0C6B 0  C101      SK5   LD     1 1        GET ENTRY              C4012086
0C6C 00 F400043D        EOR  L   TERM                            C4012087
0C6E 01 4C180C82        BSC  L   BUILD,+- BRANCH IF TERM         C4012088
0C70 0  C100            LD     1 0        GET ENTRY              C4012089
0C71 01 4C180CFD        BSC  L   DEC1,+-  BRANCH IF SPACE        C4012090
0C73 01 4F800048        BSC  13 CNVRT-1   GO CONVERT        SRC  C4012091
0C75 01 4F800050  SK16  BSC  13 CK-1      GO CK DATA        SRC  C4012092
0C77 0  D200      SK1A  STO    2 0        SAVE DATA              C4012093
0C78 0  7201            MDX    2 1        INCR IX 2              C4012094
0C79 0  73FF            MDX    3 -1       DECR IX 3              C4012095
0C7A 0  70F0            MDX      SK5      LOOP                   C4012096
0C7B 01 7401005A        MDX  L   WDCT,1   INCR WD CT             C4012097
0C7D 0  70EC            MDX      SK6      LOOP                   C4012098
0C7E 00 44800132  SKER1 BSI  I   SER      PRINT ERROR       SRC  C4012099
0C80 1  005F            DC       SKE00                           C4012100
0C81 0  0230      S0560 DC       560      CONSTANT               C4012101
0C82 01 66000DEA  BUILD LDX  L2 SW61      SET IXING              C4012102
0C84 01 650000EA  SK7   LDX  L1 SW61                             C4012103
0C86 0  C200      SK8   LD     2 0                               C4012104
0C87 0  F201            EOR    2 1        BUILD DOEF             C4012105
0C88 0  F202            EOR    2 2                               C4012106
0C89 0  D100            STO    1 0                               C4012107
0C8A 01 74010058        MDX  L   WDCT1,1  INCR WD CT             C4012108
0C8C 0  C203            LD     2 3        BUILD AC MOD           C4012109
0C8D 0  1008            SLA      11                              C4012110
0C8E 0  F204            EOR    2 4                               C4012111
0C8F 0  D101            STO    1 1                               C4012112
0C90 01 74010058        MDX  L   WDCT1,1  INCR WD CT             C4012113
0C92 0  7102            MDX    1 2        IXCR IX 1              C4012114
0C93 0  7205            MDX    2 5        INCR IX 2              C4012115
0C94 01 74FF005A        MDX  L   WDCT,-1  CK FOR DONE            C4012116
0C96 0  7061            MDX      SK9      BRANCH                 C4012117
0C97 0  690C      SKA   STX    1 SKD+1    SAVE IXING             C4012118
0C98 0  6A0D            STX    2 SKE+1                           C4012119
0C99 0  680E            STX    3 SKF+1                           C4012120
CC9A 01 65800C17        LDX  I1 SK11      SET IXING              C4012121
0C9C 01 66800C18        LDX  I2 SK12                             C4012122
0C9E 01 67800058        LDX  I3 WDCT1                            C4012123
0CA0 00 44800133        BSI  I   SECSU    SET CARD          SRC  C4012124
0CA2 1  00EA      SK8   DC       SW61                            C4012125
0CA3 00 65000000  SKD   LDX  L1 0         RESTORE IXING          C4012126
0CA5 00 66000000  SKE   LDX  L2 0                                C4012127
0CA7 00 67000000  SKF   LDX  L3 0                                C4012128
0CA9 0  1010            SLA      16                              C4012129
0CAA 01 D4000058        STD  L   WDCT1    CLEAR WD CT            C4012130
0CAC 01 74010C18        MDX  L   SK12,1   INCR CD NO             C4012131
0CAE 01 7400005A        MDX  L   WDCT,0   IS TOTAL WD CT = 0     C4012132
0CB0 0  70D3            MDX      SK7      LOOP                   C4012133
0CB1 00 65000000        LDX  L1 0         SET IXING              C4012134
0CB3 0  6903      SM0   STX    1 SM+1                            C4012135
0CB4 0  C03F            LD       ENT3     SET NO TD CK           C4012136
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0CB5 0  003C            STO      ENT1                            C4012137
0CB6 00 66000000  SM    LDX  L2 0                                C4012138
0CB8 0  7202            MDX    2 2                               C4012139
                  *                                              C4012140
0CB9 0  C200      SM1A  LD     2 0        GET A DOEF             C4012141
0CBA 00 F4000442        EOR  L   SRTRY+1  CK FOR AT PID          C4012142
0CBC 01 4C180CE2        BSC  L   SM3A,+-  GD ADJ IX 1            C4012143
0CBE 0  C100            LD     1 0        GET DOEF               C4012144
0CBF 00 F4000430        EOR  L   TERM                            C4012145
0CC1 01 4C180CE4        BSC  L   SM4A,+-  EXIT IF ZERO           C4012146
0CC3 0  C100            LD     1 0                               C4012147
0CC4 0  F200            EOR    2 0        COMPARE                C4012148
0CC5 01 4C180049        BSC  L   SKER4,+- BR IF ERROR            C4012149
0CC7 0  7202            MDX    2 2        INCR IX                C4012150
0CC8 01 74010CF2        MDX  L   ENT1,1   INCR TOTAL             C4012151
0CCA 01 C4000CF2        LD   L   ENT1     CK FOR DONE            C4012152
0CCC 01 F4000CF5        EOR  L   K0040                           C4012153
0CCE 01 4C180CD1        BSC  L   SM2A,+-  BRANCH IF ALL          C4012154
0CD0 0  70E8            MDX      SM1A     LOOP                   C4012155
0CD1 0  7102      SM2A  MDX    1 2        INCR I 1               C4012156
0CD2 0  C021            LD       ENT3     GET TOTAL              C4012157
0CD3 0  8022            A        K0001    ADD 1                  C4012158
0CD4 0  D01F            STD      ENT3     SAVE                   C4012159
0CD5 01 74010CF3        MDX  L   ENT2,1   INCR CK TOTAL          C4012160
0CD7 01 C4000CF3        LD   L   ENT2     GET CK TOTAL           C4012161
0CD9 0  F01D            EOR      K0039    CK FOR DONE            C4012162
0CDA 01 4C180CE4        BSC  L   SM4A,+-  BRANCH IF DONE         C4012163
0CDC 0  C100            LD     1 0        GET ENTRY              C4012164
0CDD 00 F4000442        EOR  L   SRTRY+1  CK FOR AT PID          C4012165
0CDF 01 4C180CEA        BSC  L   SM5A,+-  BRANCH IF AT PID       C4012166
0CE1 0  7001            MDX      SM0      LOOP                   C4012167
                  *                                              C4012168
0CE2 0  7203      SM3A  MDX    2 3        SET IX TD DOEF         C4012169
0CE3 0  7005            MDX      SM1A                            C4012170
                  *                                              C4012171
0CE4 0  1010      SM4A  SLA      16       CLEAR ALL NECESSARY    C4012172
0CE5 0  D00C            STO      ENT1                            C4012173
0CE6 0  D00C            STD      ENT2                            C4012174
0CE7 0  D00C            STD      ENT3                            C4012175
                  *                                              C4012176
0CE8 00 4C00013A        BSC  L   S2       EXIT                   C4012177
                  *                                              C4012178
0CEA 0  7103      SM5A  MDX    1 3        ADJ IX 1               C4012179
0CEB 0  70C7            MDX      SM0      LOOP                   C4012180
0CEC 0  0000      TEMP  DC       0        CONSTANTS              C4012181
0CED 0  0003      K0003 DC       3                               C4012182
0CEE 0  0442      CNST  DC       SRTRY+1                         C4012183
0CEF 0  0002      K0002 DC       2                               C4012184
0CF0 0  0000      SN2   DC       0                               C4012185
0CF1 0  0583      ADRS  DC       SRTRY+322                       C4012186
                  *                                              C4012187
0CF2 0  0000      ENT1  DC       0        CONSTANTS              C4012188
0CF3 0  0000      ENT2  DC       0                               C4012189
0CF4 0  0000      ENT3  DC       0                               C4012190
0CF5 0  0028      K0040 DC       40                              C4012191
0CF6 0  0001      K0001 DC       1                               C4012192
0CF7 0  0027      K0039 DC       39                              C4012193
0CF8 0  C062      SK9   LD       WDCT1    GET CD WD CT           C4012194
0CF9 0  8063            CMP      S000C    COMPARE WITH 12        C4012195
0CFA 0  7048            MDX      SKER2    ERROR                  C4012196
0CFB 0  708A            MDX      SK8      LOOP                   C4012197
0CFC 0  709A            MDX      SKA      GD SET CD              C4012198
0CFD 0  7101      DEC1  MDX    1 1        INCR IX 1              C4012199
0CFE 01 4C000C68        BSC  L   SK5      LOOP                   C4012200
0D00 0  C100      KYHEX LD     1 0        GET WD 1               C4012201
0D01 00 D400010F        STO  L   KEYIN    SAVE                   C4012202
0D03 0  C101            LD     1 1        GET WD 2               C4012203
0D04 00 D40001E0        STD  L   KEYIN+1  SAVE                   C4012204
```

```
0006 00 C4000430          LO   L  TERM      GET TERM                    C4012205
0008 00 040001E1          STO  L  KEYIN+2   SET                         C4012206
000A 00 44300137          BSI  I  PHKYB     CONVERT TO HEX       SRC    C4012207
000C 0  0002              OC        2                                    C4012208
000D 0  0437              OC        ZERO                                 C4012209
000E 0  7103              MDX   1 3         INCR IX 1                    C4012210
000F 01 4C000C75          BSC  L  SKI6                                   C4012211
0011 0  C100      KYHX1   LO    1 0         GET WD                       C4012212
0012 00 D400010F          STO  L  KEYIN     SAVE                         C4012213
0014 00 C4000430          LO   L  TERM      GET TERM                     C4012214
0016 00 D40001E0          STO  L  KEYIN+1   SET                          C4012215
0018 00 44800137          BSI  I  PHKYB     CONVERT TO HEX       SRC     C4012216
001A 0  0001              DC        1                                    C4012217
0018 0  0437              DC        ZERO                                 C4012218
001C 0  7102              MDX   1 2         INCR IX 1                    C4012219
0010 01 4C000C75          BSC  L  SKI6                                   C4012220
001F 0  C100      KYOC2   LO    1 0         GET WO 1                     C4012221
0020 DD 0400010F          STO  L  KEYIN     SAVE                         C4012222
0022 0  C101              LD    1 1         GET WO 2                     C4012223
0023 00 D40001ED          STO  L  KEYIN+1   SAVE                         C4012224
0025 00 C4000430          LD   L  TERM      GET TERM                     C4012225
0027 00 040001E1          STO  L  KEYIN+2   SET                          C4012226
0029 00 44800136          BSI  I  POKYB     CONVERT TO DEC       SRC     C4012227
002B 0  0002              OC        2                                    C4012228
002C 0  0437              DC        ZERO                                 C4012229
002D 0  7103              MDX   1 3         INCR IX 1                    C4012230
002E 01 4C000C75          BSC  L  SKI6                                   C4012231
0030 00 C400013E  LSFF    LD   L  BINRY     GET WO                       C4012232
0032 D  B02B              CMP       SDOFF   CMPR WITH FF                 C4012233
0033 0  7012              MDX       SKER3   ERROR                        C4012234
0034 0  1000              NOP       0                                    C4012235
0035 01 4C000C77          BSC  L  SKIA                                   C4012236
0037 00 44800131  CH      BSI  I  SCH       CK CH NO             SRC     C4012237
0039 01 4C000C77          BSC  L  SKIA                                   C4012238
003B 00 44800130  LSW     BSI  I  SILSW     CK ILSW BIT          SRC     C4012239
0030 01 4C000C77          BSC  L  SKIA                                   C4012240
003F 00 4480012F  IL      BSI  I  SIL       CK INT LVL           SRC     C4012241
0041 01 4C000C77          BSC  L  SKIA                                   C4012242
0043 00 44800132  SKER2   BSI  I  SER       PRINT ERROR          SRC     C4012243
0045 1  0D5F              OC        SKE00                                C4012244
0046 00 44800132  SKER3   BSI  1  SER       PRINT ERROR          SRC     C4012245
004B 1  0075              DC        SKE02                                C4012246
0049 00 44800132  SKER4   BSI  I  SER       IDENTICAL ODEFS      SRC     C4012247
004B 1  008C              OC        SKE03                                C4012248
004C 1  0D00      CNVRT   DC        KYHEX   CONVERT TABLE                C4012249
004D 1  001F              DC        KYOC2                                C4012250
004E 1  0011              DC        KYHX1                                C4012251
004F 1  001F              DC        KYOC2                                C4012252
0050 1  001F              OC        KYOC2                                C4012253
0051 1  0056      CK      OC        AC      CK TBL                       C4012254
0052 1  0030              OC        LSFF                                 C4012255
0053 1  0D37              OC        CH                                   C4012256
0054 1  003B              OC        LSW                                  C4012257
0055 1  003F              OC        IL                                   C4012258
0056 00 C4D0013E  AC      LO   L  BINRY     GET ENTRY                    C4012259
005B 01 4C000C77          BSC  L  SKIA                                   C4012260
005A 0  0000      WOCT    OC        0       TOTAL WD CT                  C4012261
005B 0  0000      WOCT1   OC        0       CARD WD CT                   C4012262
005C 0  0005      S0005   OC        5       CONSTANTS                    C4012263
005D 0  000C      S000C   OC        /000C                                C4012264
005E 0  001F      S00FF   DC        31                                   C4012265
                  *                                                      C4012266
005F    0012      SKE00   EBC       .E010  PIO 01-00 02.                 C4012267
0068    0012              EBC       .  IMPROPER NUMBER .                 C4012268
0071    0006              EBC       .OF WOS.                             C4012269
0074 0  FFFF              OC        /FFFF                                C4012270
                  *                                                      C4012271
0075    0012      SKE02   EBC       .E00F  PIO 01-00 02.                 C4012272
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007E    0012              EBC       .  AREA CODE WAS TO.                 C4012273
0087    0007              EBC       .O LARGE.                            C4012274
0088 0  FFFF              OC        /FFFF                                C4012275
                  *                                                      C4012276
0D8C    0012      SKE03   EBC       .E006  PIO 01-CO 02.                 C4012277
0D95    0012              EBC       .  2 OR MORE ENTR'E.                 C4012278
0D9E    000F              EBC       .S ARE IOENTICAL.                    C4012279
00A6 0  FFFF              OC        /FFFF                                C4012280
                  *                                                      C4012281
00A7    0012      SM1     EBC       .C014  PID 01-CO 02.                 C4012282
00B0    0012              EBC       .  ENTER DEVICE INF.                 C4012283
0DB9    0012              EBC       .O IN THE FOLLOWING.                 C4012284
0DC2    0012              EBC       . FORMAT  1-40 DEVI.                 C4012285
0DCB    0012              EBC       .CES-SPACE BETWEEN .                 C4012286
0DD4    0012              EBC       .ENTRIES, IL ILSW C.                 C4012287
0DD0    0012              EBC       .H AC MQQ,$00 00 H .                 C4012288
00E6    DG05              EBC       .00 HH.                              C4012289
00E9 0  FFFF              OC        /FFFF                                C4012290
                  *                                                      C4012291
0DEA 0  0000      SWB1    OC        0           ENTRY STORAGE            C4012292
00EB    0154              BSS       340                                  C4012293
0F3F 00 4C00013B  END1    BSC  L  ENDO                                   C4012294
0F42    0F3F              ENO       END1                 C401229 C4012304
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
AC	0D56	0D51
ADRS	0CF1	0C35
BGNR	0438	0C17
BINRY	D13E	0C17, 0D30, 0D56
BUILD	0C82	0C6E
CH	0D37	0D53
CK	DD51	0C75
CKYN	012D	0C17
CNST	0CEE	0C26
CNVRT	DD4C	0C73
DEC1	0CFD	0C71
END0	013B	0C17, 0F3F
END1	0F3F	0F41
ENT1	0CF2	0CB5, 0CCB, 0CCA, 0CE5
ENT2	0CF3	0CD5, 0CD7, 0CE6
ENT3	0CF4	0CB4, 0C02, 0CD4, 0CE7
ERR	0439	0C17
IL	0D3F	0055
KEY	012C	DC17, 0C44
KEYIN	01DF	0C17, 0C48, 0C4D, 0C66, 0D01, 0D04, 0D08, 0012, 0D16, 0020, 0D23, 0D27
KYDC2	0D1F	004D, 004F, 0D50
KYHEX	0D00	0D4C
KYHX1	0D11	0D4E
K0001	0CF6	0CD3
K0002	0CEF	0C38
K0003	0CED	0C24
K0039	0CF7	0CD9
K0040	0CF5	0CCC
LGRGP	043F	0C17
LSFF	0D30	0D52
LSW	003B	0D54
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17, 0D29
PHKYB	0137	0C17, 000A, 0D18
SCH	0131	0C17, 0D37
SECSU	0133	0C17, 0CAD
SER	0132	0C17, 0C7E, 0D43, 0D46, 0D49
SIL	012F	0C17, 0D3F
SILSW	0130	0C17, 0D3B
SKA	0C97	0CFC
SKA1	0C4F	0C65
SKA2	0C62	0C51, 0C54, 0C57, 0C5A
SKA3	DC64	0C5C
SKA7	0C66	0C60
SKB	0C86	0CFB
SKD	0CA3	0C97
SKE	0CA5	0C98
SKER1	0C7E	0C4B
SKER2	0D43	0C62, 0CFA
SKER3	0D46	0D33
SKER4	0D49	0CC5
SKE00	005F	0C80, 0D45
SKE02	0D75	0D48
SKED3	0D8C	0D48
SKF	0CA7	0C99
SKIA	0C77	0D35, 0D39, 0D30, 0D41, 0058
SKINU	0135	DC17
SKIN1	0134	0C17
SKI1	0C17	0C9A
SKI2	0C16	0C3D, 0C9C, 0CAC
SKI3	0C19	0C43
SKI4	0C1A	
SKI6	0C75	0D0F, 0D1D, 0D2E

SK5	0C6B	0C7A, 0CFE
SK6	0C6A	DC7D
SK7	0CB4	0CB0
SK8	0CA2	
SK9	0CF8	0C96
SM	0C86	0CB3
SM0	0CB3	0C28, 0CE1, 0CE8
SM1	0DA7	0C46
SM1A	0CB9	0C00, 0CE3
SM2A	0CD1	0CCE
SM3A	0CE2	0CBC
SM4A	0CE4	0CC1, 0CDA
SM5A	0CEA	0CDF
SN0	0C2C	0C2A
SN1	0C2E	0C39
SN2	0CF0	0C33, 0C37
SRTRY	0441	0C8A, 0CDD, 0CEE, 0CF1
SSUER	012E	0C17, 0C1E
STBF	0440	0C17, 0C1A, 0C22
SW81	0DEA	0C68, 0C82, 0C84, 0CA2
S00FF	0D5E	0D32
S000C	0D5D	0CF9
S0005	0D5C	
S0560	0CB1	0C4A
SZ	013A	0C17, 0CE8
TEMP	0CEC	0C1C, 0C20
TERM	043D	0C17, 0C2E, 0C5E, 0C6C, 0CBF, 0D06, 0D14, 0D25
TRFX	043C	0C17
WCC	043A	0C17
WDCT	0D5A	0C3F, 0C78, 0C94, 0CAE
WDCT1	0D5B	0C41, 0C8A, 0C90, 0C9E, 0CAA, 0CF8
ZERO	0437	0C17, 0D0D, 0D1B, 0D2C

```
0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKIN0 EQU   SKIN1+1
0136                PDKYB EQU   SKIN0+1
0137                PHKYB EQU   PDKYB+1
0138                END0 EQU    PHKYB+1
013A                S2 EQU      END0+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  0001        SKI1 DC     /0001
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     /0000
0C1A 0  0000        SKI4 DC     /0000
0C1B 00 4C000138    END1 BSC  L END00
0C1E    0C1B                END     END1
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C4013001
C4013002
C4013003
C4013004
C4013005
C4013006
C4013007
C4013008
C4013009
C4013010
C4013011
C4013012
C4013013
C4013014
C4013015
C4013016
C4013017
C4013018
C4013019
C4013020
C4013021
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C4013024
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C4013026
C4013027
C4013028
C4013029
C4013030
C4013031
C4013032
C4013033
C401303 C4013043

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	0120	0C17
END0	0138	0C17, 0C18
END1	0C1B	0C10
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

CPIU-OIAG MON SKELETONS SKELETON ID-0BC4-04-0

```
0000                     DRG      *+3095                               C4040001
012C               KEY  . EQU      300                                 C4040002
012D               CKYN   EQU      KEY+1                               C4040003
012E               SSUER  EQU      CKYN+1                              C4040004
012F               SIL    EQU      SSUER+1                             C4040005
0130               SILSW  EQU      SIL+1                               C4040006
0131               SCH    EQU      SILSW+1                             C4040007
0132               SER    EQU      SCH+1                               C4040008
0133               SECSU  EQU      SER+1                               C4040009
0134               SKINI  EQU      SECSU+1                             C4040010
0135               SKINO  EQU      SKINI+1                             C4040011
0136               PDKYB  EQU      SKINO+1                             C4040012
0137               PHKYB  EQU      POKYB+1                             C4040013
0138               ENDO   EQU      PHKYB+1                             C4040014
013A               S2     EQU      ENDO+2                              C4040015
013E               BINRY  EQU      S2+4                                C4040016
01DF               KEYIN  EQU      BINRY+161                           C4040017
0437               ZERO   EQU      KEYIN+600                           C4040018
0438               BGNR   EQU      ZERO+1                              C4040019
D439               ERR    EQU      BGNR+1                              C4040020
043A               WCC    EQU      ERR+1                               C4040021
043B               MTRM   EQU      WCC+1                               C4040022
043C               TRFX   EQU      MTRM+1                              C4040023
0430               TERM   EQU      TRFX+1                              C4040024
043E               LWC    EQU      TERM+1                              C4040025
043F               LGROP  EQU      LWC+1                               C4040026
0440               STBF   EQU      LGRDP+1                             C4040027
0441               SRTRY  EQU      STBF+1                              C4040028
0C17 0  0004       SKI1   DC       /0004      PID                      C4040029
0C1B 0  0000       SKI2   OC       /0000      CD NO                    C4040030
0C19 0  0001       SKI3   OC       /0001      NO ENTRIES               C4040031
0C1A 00 44B0012E   SKI4   BSI  I   SSUER      SET ERROR RETURN    SRC  C4040032
0C1C 00 4480012C          BSI  I   KEY        ENTER IL            SRC  C4040033
0C1E 1  0C3E              DC       SM1                                 C4040034
0C1F 0  B120              DC       /B120                               C4040035
0C20 00 44B0012F          BSI  I   SIL        CK INT LVL          SRC  C4040036
0C22 0  D01B              STD      SWB1       SAVE                     C4040037
                   *                                                   C4040038
0C23 00 44B0012E          BSI  I   SSUER      SET ERROR RETURN    SRC  C4040039
0C25 00 4480012C          BSI  I   KEY        ENTER ILSW          SRC  C4040040
0C27 1  0C60              DC       SM2                                 C4040041
0C2B 0  B120              DC       /B12D                               C4040042
0C29 00 44800130          BSI  I   SILSW      CK ILSW BIT         SRC  C4040043
0C2B 0  D010              STU      SWB2                                C4040044
                   *                                                   C4040045
0C2C D  C00E              LD       SWB1       BUILD DDEF               C4040046
0C2D 0  F00E              EOR      SWB2                                C4040047
0C2E 0  F00E              EOR      SWB3                                C4040048
0C2F 0  D00B              STO      SWB1       SAVE                     C4040049
                   *                                                   C4040050
0C30 01 65B00C17          LDX  I1  SKI1       SET IXING                C4040051
0C32 01 66800C1B          LOX  I2  SKI2                                C4040052
0C34 01 67800C19          LDX  13  SKI3                                C4040053
0C36 00 44B00133          BSI  I   SECSU      SET CARD            SRC  C4040054
0C3B 1  0C38              DC       SWB1                                C4040055
0C39 00 4C00013A          BSC  L   S2         EXIT                     C4040056
0C3B 0  0000       SWB1   DC       0          ENTRY STORAGE            C4040057
0C3C 0  0000       SWB2   DC       0                                   C4040058
0C3D 0  000F       SWB3   DC       /000F      CONSTANT                 C4040059
                   *                                                   C4040060
0C3E    0012       SM1    EBC      .C001  PID 04-CD DO.                C4040061
0C47    0012              EBC      .  ENTER 2 DIGIT DE.                C4040062
0C50    0012              EBC      .CIMAL INTRPT LVL F.                C4040063
0C59    000C              EBC      .DR 1054-1055.                      C4040064
0C5F 0  FFFF              OC       /FFFF                               C4040065
                   *                                                   C4040066
0C60    0011       SM2    EBC      .C002 PIO 04-CD 00.                 C4040067
0C69    0012              EBC      .  ENTER 2 DIGIT DE.                C4040068
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IBM MAINTENANCE DIAGNOSTIC PROGRAM FOR THE 1800 SYSTEM PART NO. 2242266

CPID-OIAG MON SKELETONS SKELETON ID-0BC4-04-0

```
0C72    0012              EBC      .CIMAL ILSW BIT FOR.                C4040069
0C7B    000A              EBC      . 1054-1055.                        C4040070
0CB0 0  FFFF              DC       /FFFF                               C4040071
0CB1 00 4C000138   END1   BSC  L   ENDO                                C4040072
0CB4    0CB1              END      END1                        C404007 C4040082
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENOO	0138	0C17, 0CB1
END1	0C81	0CB3
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17, 0C36
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C29
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C30
SKI2	0C18	0C32
SKI3	0C19	0C34
SKI4	0C1A	
SM1	0C3E	0C1E
SM2	0C60	0C27
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23
STBF	0440	0C17
SWB1	0C3B	0C22, 0C2C, 0C2F, 0C38
SWB2	0C3C	0C28, 0C2D
SWB3	0C30	0C2E
S2	013A	0C17, 0C39
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                    ORG    *+3095                    C4041001
012C                KEY EQU    300                       C4041002
012D                CKYN EQU   KEY+1                     C4041003
012E                SSUER EQU  CKYN+1                    C4041004
012F                SIL EQU    SSUER+1                   C4041005
0130                SILSW EQU  SIL+1                     C4041006
0131                SCH EQU    SILSW+1                   C4041007
0132                SER EQU    SCH+1                     C4041008
0133                SECSU EQU  SER+1                     C4041009
0134                SKIN1 EQU  SECSU+1                   C4041010
0135                SKINO EQU  SKIN1+1                   C4041011
0136                POKYB EQU  SKINO+1                   C4041012
0137                PHKYB EQU  PDKYB+1                   C4041013
0138                ENOO EQU   PHKYB+1                   C4041014
013A                S2 EQU     ENDO+2                    C4041015
013E                BINRY EQU  S2+4                      C4041016
01DF                KEYIN EQU  BINRY+161                 C4041017
0437                ZERO EQU   KEYIN+600                 C4041018
0438                BGNR EQU   ZERO+1                    C4041019
0439                ERR EQU    BGNR+1                    C4041020
043A                WCC EQU    ERR+1                     C4041021
043B                MTRM EQU   WCC+1                     C4041022
043C                TRFX EQU   MTRM+1                    C4041023
043D                TERM EQU   TRFX+1                    C4041024
043E                LWC EQU    TERM+1                    C4041025
043F                LGROP EQU  LWC+1                     C4041026
0440                STBF EQU   LGROP+1                   C4041027
0441                SRTRY EQU  STBF+1                    C4041028
0C17 0  0004        SKI1 DC    /0004                     C4041029
0C18 0  FFFF        SKI2 DC    /FFFF                     C4041030
0C19 0  0000        SKI3 DC    0                         C4041031
0C1A 0  0000        SKI4 DC    0                         C4041032
0C1B 00 4C000138    END1 BSC L ENDO                      C4041033
0C1E    0C1B            END    END1              C4041C3 C4041043
```

CPIO-DIAG MON SKELETONS SKELETON ID-08C4-04-1

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	0120	0C17
ENDO	0138	0C17, 0C1B
ENO1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKINI	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	D43C	0C17
WCC	043A	0C17
ZERO	0437	0C17

CPIO-DIAG MON SKELETONS SKELETON ID-08C4-05-0

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D000                          DRG       *+3095                                  C4050001
012C                   KEY    EQU       300                                     C4050002
012D                   CKYN   EQU       KEY+1                                   C4050003
012E                   SS''ER EQU       CKYN+1                                  C4050004
012F                   SIL    EQU       SSUER+1                                 C4050005
0130                   SILSW  EQU       SIL+1                                   C4050006
0131                   SCH    EQU       SILSW+1                                 C4050007
0132                   SER    EQU       SCH+1                                   C405000B
0133                   SECSU  EQU       SER+1                                   C4050009
0134                   SKIN1  EQU       SECSU+1                                 C4050010
0135                   SKINO  EQU       SKIN1+1                                 C4050011
0136                   POKYB  EQU       SKINO+1                                 C4050012
0137                   PHKYB  EQU       PDKYB+1                                 C4050013
013B                   ENOO   EQU       PHKYB+1                                 C4D50D14
013A                   S2     EQU       ENDD+2                                  C4050015
013E                   BINRY  EQU       S2+4                                    C4D50016
01DF                   KEYIN  EQU       BINRY+161                               C4050017
0437                   ZERD   EQU       KEYIN+600                               C405001B
0438                   BGNR   EQU       ZERD+1                                  C4050019
0439                   ERR    EQU       BGNR+1                                  C4050020
043A                   WCC    EQU       ERR+1                                   C4050021
043B                   MTRM   EQU       WCC+1                                   C4050022
043C                   TRFX   EQU       MTRM+1                                  C4050023
043D                   TERM   EQU       TRFX+1                                  C4050024
043E                   LWC    EQU       TERM+1                                  C4050025
043F                   LGROP  EQU       LWC+1                                   C4050026
0440                   STBF   EQU       LGRDP+1                                 C4050027
0441                   SRTRY  EQU       STBF+1                                  C4050023
0C17 0  0005           SKI1   DC        /0005      PID                          C4050029
0C18 0  D000           SKI2   DC        D          CD NO                        C4050030
0C19 0  0001           SKI3   DC        /00D1      ND ENTRIES                   C4050031
0C1A 00 4480012E       SKI4   BSI   I   SSUER      SET ERRCR RETURN     SRC     C4050032
0C1C 00 4480012C              BSI   I   KEY        ENTER IL 1ST 1627    SRC     C4050033
0C1E 1  0C43                  DC        SM1                                     C4050034
0C1F 0  8120                  DC        /812D                                   C4050035
0C20 0D 4480012F              BSI   I   SIL        CK INT LVL           SRC     C4050036
DC22 0  D01D                  STD       SWB1                                    C4050037
                       *                                                        C4050038
0C23 00 4480012E              BSI   I   SSUER      SET ERROR RETURN     SRC     C4050039
0C25 00 4480012C              BSI   I   KEY        ILSW BIT 1ST 1627    SRC     C4050040
0C27 1  0C63                  OC        SM2                                     C4050041
0C28 0  8120                  OC        /812D                                   C4050042
0C29 0D 44800130              BSI   I   SILSW      CK ILSW 8IT          SRC     C4050043
0C2B 0  D015                  STD       SWB2       SAVE                         C4050044
0C2C 01 C4000C40              LD    L   SWB1       BUILO DUEF                   C405D045
0C2E 01 F4000C41              EOR   L   SWB2                                    C4050046
DC30 01 F4000C3F              EOR   L   K000F                                   C4050047
0C32 01 D4000C40              STO   L   SWB1       SAVE                         C4050048
                       *                                                        C4050049
0C34 01 65800C17       SK3    LDX   I1  SKI1       SET IXING                    C4050050
0C36 01 66800C18              LDX   I2  SKI2                                    C4050051
0C3B 01 67800C19              LDX   I3  SKI3                                    C4050052
0C3A 00 44800133              BSI   I   SECSU      SET CARD             SRC     C4050053
0C3C 1  0C40                  DC        SW81                                    C4050054
0C3D 00 4C00013A              BSC   L   S2                                      C4050055
                       *                                                        C4050056
0C3F D  00DF           K000F  DC        /000F                                   C4050057
0C40 0  0000           SWB1   DC        D          ENTRY STORAGE                C4050058
0C41 G  00D0           SWB2   DC        0                                       C4050059
0C42 0  00D0           SWB3   DC        0                                       C4050060
                       *                                                        C4050061
0C43    0012           SM1    EBC       .C001  PID 05-CD 00.                    C4050062
0C4C    0012                  EBC       .  ENTER 2 OIGIT DE.                    C4050063
0C55    0012                  EBC       .CIMAL INTRPT LVL F.                    C4050064
0C5E    0007                  EBC       .DR 1627.                               C4050065
0C62 0  FFFF                  DC        /FFFF                                   C4050066
                       *                                                        C4050067
0C63    0012           SM2    EBC       .C002  PIO 05-C0 00.                    C4050068
```

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0C6C    0012              EBC     . ENTER 2 OIGIT DE.          C4050069
0C75    0012              EBC     .CIMAL ILSW BIT FOR.         C4050070
0C7E    0005              EBC     . 1627.                      C4050071
0C81 0  FFFF              OC      /FFFF                        C4050072
                  *                                            C4050073
0C82 00 4C000138  ENO1    BSC  L  ENOO                         C4050074
0C84    0C92              END     END1                 C405007 C4050084
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C82
ENO1	0C82	0C84
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25
KEYIN	01DF	0C17
KOOOF	0C3F	0C30
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17, 0C3A
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C29
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C34
SKI2	0C18	0C36
SKI3	0C19	0C38
SKI4	0C1A	
SK3	0C34	
SM1	0C43	0C1E
SM2	0C63	0C27
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23
ST8F	0440	0C17
SWB1	0C40	0C22, 0C2C, 0C32, 0C3C
SWB2	0C41	0C28, 0C2E
SWB3	0C42	
S2	013A	0C17, 0C30
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

```
0000                    ORG     **3095                  C4051001
012C                KEY EQU     300                     C4051002
012D                CKYN EQU    KEY+1                   C4051003
012E                SSUER EQU   CKYN+1                  C4051004
012F                SIL EQU     SSUER+1                 C4051005
0130                SILSW EQU   SIL+1                   C4051006
0131                SCH EQU     SILSW+1                 C4051007
0132                SER EQU     SCH+1                   C4051008
0133                SECSU EQU   SER+1                   C4051009
0134                SKIN1 EQU   SECSU+1                 C4051010
0135                SKIN0 EQU   SKIN1+1                 C4051011
0136                POKYB EQU   SKIN0+1                 C4051012
0137                PHKYB EQU   POKYB+1                 C4051013
0138                END0 EQU    PHKYB+1                 C4051014
013A                S2 EQU      END0+2                  C4051015
013E                BINRY EQU   S2+4                    C4051016
010F                KEYIN EQU   BINRY+161               C4051017
0437                ZERO EQU    KEYIN+600               C4051018
0438                BGNR EQU    ZERO+1                  C4051019
0439                ERR EQU     BGNR+1                  C4051020
043A                WCC EQU     ERR+1                   C4051021
043B                MTRM EQU    WCC+1                   C4051022
043C                TRFX EQU    MTRM+1                  C4051023
043D                TERM EQU    TRFX+1                  C4051024
043E                LWC EQU     TERM+1                  C4051025
043F                LGROP EQU   LWC+1                   C4051026
0440                STBF EQU    LGROP+1                 C4051027
0441                SRTRY EQU   STBF+1                  C4051028
0C17 0  0005        SKI1 DC     /0005                   C4051029
0C18 0  FFFF        SKI2 DC     /FFFF                   C4051030
0C19 0  0000        SKI3 DC     0                       C4051031
0C1A 0  0000        SKI4 DC     0                       C4051032
0C18 00 4C000138    END1 BSC  L END0                    C4051033
0C1E    0C1B            END0    END1            C405103 C4051043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
EGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
END0	013B	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     **3095                          C4060001
012C                KEY EQU     300                             C4060002
0120                CKYN EQU    KEY+1                           C4060003
012E                SSUER EQU   CKYN+1                          C4060004
012F                SIL EQU     SSUER+1                         C4060005
0130                SILSW EQU   SIL+1                           C4060006
0131                SCH EQU     SILSW+1                         C4060007
0132                SER EQU     SCH+1                           C4060008
0133                SECSU EQU   SER+1                           C4060009
0134                SKIN1 EQU   SECSU+1                         C4060010
0135                SKIN0 EQU   SKIN1+1                         C4060011
0136                POKYB EQU   SKINO+1                         C4060012
0137                PHKYB EQU   POKYB+1                         C4060013
0138                EN00 EQU    PHKYB+1                         C4060014
013A                S2 EQU      EN00+2                          C4060015
013E                8INRY EQU   S2+4                            C4060016
01DF                KEYIN EQU   8INKY+161                       C4060017
0437                ZERO EQU    KEYIN+600                       C4060018
0438                8GNR EQU    ZERO+1                          C4060019
0439                ERR EQU     BGNR+1                          C4060020
043A                WCC EQU     ERR+1                           C4060021
043B                MTRM EQU    WCC+1                           C4060022
043C                TRFX EQU    MTRM+1                          C4060023
0430                TERM EQU    TRFX+1                          C4060024
043E                LWC EQU     TERM+1                          C4060025
043F                LGROP EQU   LWC+1                           C4060026
0440                STBF EQU    LGROP+1                         C4060027
0441                SRTRY EQU   STBF+1                          C4060028
0C17 0  0006        SKI1 OC     /0006       PIO                 C4060029
0C18 0  0000        SKI2 OC     /0000       CO NO               C4060030
0C19 0  000A        SKI3 OC     /000A       NO OF ENTRIES       C4060031
0C1A 0  630A        SKI4 LOX  3 10                              C4060032
0C1B 0  1610             SLA    16                              C4060033
0C1C 01 D7000C00    SK9  STO  L3 SWB1-1     CLEAR DATA STORAGE  C4060034
0C1E 0  73FF             MDX    3 -1        OECR IX 3           C4060035
0C1F 0  70FC             MDX    SK9         LOOP                C4060036
0C20 01 C4000CC8         LO   L KOOO1                           C4060037
0C22 01 04000CCA         STO  L MONSW        SET SW              C4060038
0C24 00 4480012E         BSI  I SSUER        SET ERROR RETURN  SRC C4060039
0C26 00 4480012C         BSI  I KEY          ENTER TOTAL TYPES SRC C4060040
0C28 1  0003             DC     SM1                              C4060041
0C29 0  8110             DC     /8110                            C4060042
                *                                               C4060043
0C2A 00 C400013E         LO   L 8INRY        GET ENTRY           C4060044
0C2C 01 4C180CF6         BSC  L SKE01,+-     BR IF ZERO          C4060045
0C2E 01 B4000CCD         CMP  L K0008        CK FOR MAX          C4060046
0C30 0  703F             MDX    SKE02        ERROR               C4060047
0C31 0  1000             NOP    0                                C4060048
0C32 01 04000CCF         STO  L TYCT         SAVE                C4060049
0C34 01 04000CD0         STO  L TYCT1                            C4060050
                *                                               C4060051
0C36 00 4480012E    SK2  BSI  I SSUER        SET ERROR RETURN  SRC C4060052
0C38 00 4480012C         BSI  I KEY          IL FOR TYPE       SRC C4060053
0C3A 1  0027             DC     SM2                              C4060054
0C3B 0  8120             DC     /8120                            C4060055
                *                                               C4060056
0C3C 00 4480012F         BSI  I SIL          CK IL             SRC C4060057
0C3E 01 04000CC4         STO  L TEMP         SAVE                C4060058
                *                                               C4060059
0C40 00 4480012E         BSI  I SSUER        SET ERROR RETURN  SRC C4060060
0C42 00 4480012C         BSI  I KEY          ENTER ILSW        SRC C4060061
0C44 1  0C4A             DC     SM3                              C4060062
0C45 0  8120             DC     /8120                            C4060063
                *                                               C4060064
0C46 00 44800130         BSI  I SILSW        CK ILSW BIT       SRC C4060065
0C48 01 F4000CC4         EOR  L TEMP         BUILD OOEF          C4060066
0C4A 01 F4000CCE         EOR  L H000F                            C4060067
0C4C 0  0077             STO    TEMP                             C4060068
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                *                                               C4060069
0C40 00 4480012E         BSI  I SSUER        SET ERROR RETURN  SRC C4060070
0C4F 00 4480012C         BSI  I KEY          ENTER TYPE NO     SRC C4060071
0C51 1  0075             OC     SM5                              C4060072
0C52 0  8110             OC     /8110                            C4060073
                *                                               C4060074
0C53 00 C400013E         LO   L 8INRY        GET ENTRY           C4060075
0C55 01 4C180CF9         BSC  L SKE03,+-     BR IF ZERO          C4060076
0C57 0  B075             CMP    K0008        CK FOR MAX          C4060077
0C58 0  7068             MDX    SKE04        ERROR               C4060078
0C59 0  1000             NOP    0                                C4060079
0C5A 01 04000C50         STO  L S4+1                             C4060080
0C5C 00 67000000    S4   LDX  L3 0                              C4060081
0C5E 01 74000CCA         MDX  L MONSW,0      IS MON OV SET       C4060082
0C60 0  7002             MDX    T2                               C4060083
0C61 01 4C000C6C         BSC  L SK3                              C4060084
0C63 00 4480012E    T2   BSI  I SSUER        SET ERROR RETURN  SRC C4060085
                *                                               C4060086
0C65 00 4480012C         BSI  I KEY          IS THIS MON OEV   SRC C4060087
0C67 1  0093             DC     SM6                              C4060088
0C68 0  8000             DC     /8000                            C4060089
                *                                               C4060090
0C69 00 44800120         BSI  I CKYN         CK FOR Y OR N     SRC C4060091
0C6B 0  7007             MDX    SK4          ENTRY WAS Y         C4060092
                *                                               C4060093
0C6C 0  C057        SK3  LD     TEMP         GET OOEF            C4060094
0C6D 01 07000CD1    SKA  STO  L3 SWB1                           C4060095
0C6F 0  7018             MDX    SK5                              C4060096
0C70 00 44800132    SKE02 BSI  I SER         MORE THAN 8 TYPES SRC C4060097
0C72 1  000E             DC     SE001                            C4060098
                *                                               C4060099
0C73 0  C050        SK4  LD     TEMP                            C4060100
0C74 0  005C             STO    SWB1                             C4060101
0C75 0  1010             SLA    16                               C4060102
0C76 01 07000C01         STO  L3 SWB1                           C4060103
0C78 01 04000CCA         STO  L MONSW         CLEAR MON SW       C4060104
0C7A 01 C7000C01         LO   L3 SWB1         GET ENTRY          C4060105
0C7C 0  4820             BSC    Z             SKIP IF ZERO       C4060106
0C7D 0  7000             MDX    SK5           BRANCH             C4060107
0C7E 0  6302             LDX    3 2           SET IX             C4060108
0C7F 01 C4000C50         LO   L S4+1          GET IO             C4060109
0C81 0  F046             EOR    K0001         CK FOR 1           C4060110
0C82 01 4C180C99         BSC  L SK5A,+-       BRANCH IF 1        C4060111
0C84 01 C4000C5D         LO   L S4+1          GET IO             C4060112
0C86 01 F4000CCC         EOR  L K0005         CK FOR 5           C4060113
0C88 01 4C200CA2         BSC  L SK7,Z         BRANCH IF NOT 5    C4060114
0C8A 0  700E             MDX    SK5A          BRANCH             C4060115
0C8B 0  6300        SK5  LDX    3 0                             C4060116
0C8C 01 C4000C50         LD   L S4+1          GET NUMBER         C4060117
0C8E 01 F4000CC8         EOR  L K0001         IS IT 1            C4060118
0C90 01 4C180C99         BSC  L SK5A,+-       YES                C4060119
0C92 0  6301             LDX    3 1                             C4060120
0C93 01 C4000C50         LO   L S4+1          GET NUMBER         C4060121
0C95 01 F4000CCC         EOR  L K0005         IS IT 5            C4060122
0C97 01 4C200CA2         BSC  L SK7,Z         NO                 C4060123
0C99 00 4480012E    SK5A BSI  I SSUER        SET ERROR RETURN  SRC C4060124
0C98 00 4480012C         BSI  I KEY          IS IT 1816        SRC C4060125
0C90 1  0080             OC     SM7                              C4060126
0C9E 0  8000             OC     /8000                            C4060127
                *                                               C4060128
0C9F 00 44800120         BSI  I CKYN         CK FOR Y OR N     SRC C4060129
0CA1 0  7004             MDX    SK6          ENTRY WAS Y         C4060130
                *                                               C4060131
0CA2 01 74FF0CCF    SK7  MDX  L TYCT,-1      OECR TYPE CT        C4060132
0CA4 0  7091             MDX    SK2           LOOP               C4060133
0CA5 0  7035             MDX    SK8           EXIT               C4060134
0CA6 01 C7000CC5    SK6  LD   L3 TBL         SET 1816 IND       C4060135
0CA8 0  F031             EOR    SWB10                            C4060136
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0CA9 0  D030            STO     SWB10
0CAA 0  73FF            MDX   3 -1              DECR IX 3
0CAB 0  7001            MDX     SKS0            BRANCH
0CAC 0  70F5            MDX     SK7
0CAD 01 C4000C5D  SKSC  LD    L S4+1            GET ID
0CAF 0  F018            EOR     K0001           IS IT 1
0CB0 01 4C180CB4        BSC   L SKS1,+-         YES
0CB2 0  6301            LDX   3 1               SET IX
0CB3 0  70F2            MDX     SK6
0CB4 0  6300      SKS1  LDX   3 0               SET IX
0CB5 0  70F0            MDX     SK6
                *
0CB6 01 65800C17  SKB   LDX   I1 SKI1           SET IXING
0CB8 01 66800C18        LDX   I2 SKI2
0CBA 01 67800C19        LDX   I3 SKI3
                *
0CBC 00 44800133        BSI   I SECSU           SET CARD                SRC
0CBE 1  0CD1            DC      SWB1
0CBF 00 4C00013A        BSC   L S2              EXIT
0CC1 00 44800132  SKE04 BSI   I SER             FLD GREATER 8           SRC
0CC3 1  0DDE            DC      SE001
                *
0CC4 0  0000      TEMP  DC      0               CONSTANTS
0CC5 0  4000      TBL   DC      /4000
0CC6 0  0400            DC      /0400
0CC7 0  8000            DC      /8000
0CC8 0  0001      K0001 DC      1
0CC9 1  0CDA      KLMT  DC      SWB10
0CCA 0  0000      MDNS4 DC      0
0CCB 0  0400            DC      /0400
0CCC 0  0005      K0005 DC      5
0CCD 0  0008      K0008 DC      8
0CCE 0  000F      H000F DC      /000F
0CCF 0  0000      TYCT  DC      0
0CD0 0  0000      TYCT1 DC      9
0CD1 0  0000      SWB1  DC      0               DATA STORAGE
0CD2 0  0000      SWB2  DC      0
0CD3 0  0000      SWB3  DC      0
0CD4 0  0000      SWB4  DC      0
0CD5 0  0000      SWB5  DC      0
0CD6 0  0000      SWB6  DC      0
0CD7 0  0000      SWB7  DC      0
0CD8 0  0000      SWB8  DC      0
0CD9 0  0000      SWB9  DC      0
0CDA 0  0000      SWB10 DC      0
                *
0CDB 01 67800C00  SKB   LDX   I3 TYCT1
0CDD 00 6500FFF8        LDX   L1 -8
0CDF 01 66000CD2        LDX   L2 SWB2
0CE1 0  6A01            STX     2 SKX+1
0CE2 00 66000000  SKX   LDX   L2 0               CK DDEFS
0CE4 01 C5000CD9  SKX1  LD    L1 SWB1+8
0CE6 01 4C180CE8        BSC   L SKA1,+-
0CE8 0  F200            EOR     2 0
0CE9 01 4C180CFC        BSC   L SKE05,+-
0CEB 0  7201      SKA1  MDX     2 1
0CEC 0  6AD7            STX     2 TEMP
0CED 0  C0D8            LD      KLMT
0CEE 0  F0D5            EOR     TEMP
0CEF 01 4C200CE4        BSC   L SKX1,Z
0CF1 01 74010CE3        MDX   L SKX+1,1
0CF3 0  7101            MDX     1 1
0CF4 0  70E0            MDX     SKX
0CF5 0  70C0            MDX     SKB
                *
0CF6 00 44800132  SKE01 BSI   I SER             ZERO TYPES              SRC
0CF8 1  0DDE            DC      SE001
0CF9 00 44800132  SKE03 BSI   I SER             FLD ZERO                SRC

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0CF8 1  0DDE            DC      SE001
0CFC 01 65000C1A  SKE05 LDX   L1 SKI4
0CFE 00 6D000441        STX   L1 SRTRY
0D00 00 44800132        BSI   I SER             2 DDEFS ALIKE           SRC
0D02 1  0DF5            DC      SE005
                *
0D03    0012    SM1     EBC     .C004  PID 06-CD 00.
0D0C    0012            EBC     .  ENTER NUMBER OF .
0D15    0012            EBC     .TYPEWRITERS ON SYS.
0D1E    0010            EBC     .TEM-1-8, 1 DIGIT.
0D26 0  FFFF            DC      /FFFF
                *
0D27    0012    SM2     EBC     .C001  PID 06-CD 00.
0D30    0012            EBC     .  ENTER 2 DIGIT DE.
0D39    0012            EBC     .CIMAL INTR LVL FOR.
0D42    000D            EBC     . A TYPEWRITER.
0D49 0  FFFF            DC      /FFFF
                *
0D4A    0012    SM3     EBC     .C002  PID 06-CD 0..
0D53    0012            EBC     .  ENTER 2 DIGIT DE.
0D5C    0012            EBC     .CIMAL ILSW BIT FOR.
0D65    0012            EBC     . TYPEWRITER ON ABD.
0D6E    000B            EBC     .VE INTR LVL.
0D74 0  FFFF            DC      /FFFF
                *
0D75    0012    SM5     EBC     .C037  PID 06-CD 00.
0D7E    0012            EBC     .  ENTER 1 DIGIT TY.
0D87    0012            EBC     .PEWRITER ID NUMBER.
0D90    0004            EBC     .-1-8.
0D92 0  FFFF            DC      /FFFF
                *
0093    0012    SM6     EBC     .C036  PID 06-CD 00.
0D9C    0012            EBC     .  IS THE ABOVE ID .
0DA5    0012            EBC     .NUMBER FOR DIAG MO.
0DAE    0012            EBC     .N OUTPUT DEVICE-TY.
0DB7    0009            EBC     .PE Y OR N.
0DBC 0  FFFF            DC      /FFFF
                *
0DBD    0012    SM7     EBC     .C036  PID 06-CD 00.
0DC6    0012            EBC     .  IS THE ABOVE ID .
0DCF    0012            EBC     .NUMBER FOR 1816-TY.
0DDB    0009            EBC     .PE Y OR N.
0DDD 0  FFFF            DC      /FFFF
                *
0DDE    0012    SE001   EBC     .E007  PID 06-CD 00.
0DE7    0012            EBC     .  ENTRY TOO LARGE .
0DF0    0008            EBC     . DR 0000.
0DF4 0  FFFF            DC      /FFFF
                *
0DF5    0012    SE005   EBC     .E006  PID 06-CD 00.
0DFE    0012            EBC     .  2 OR MORE ENTRIE.
0E07    000F            EBC     .S ARE IDENTICAL.
0E0F 0  FFFF            DC      /FFFF
                *
0E10 00 4C000138  END1  BSC   L ENDO
0E12    0E10            END     END1

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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17, 0C2A, 0C53
CKYN	012D	0C17, 0C69, 0C9F
END0	0138	0C17, 0E10
END1	0E10	0E12
ERR	0439	0C17
HOOUF	0CCE	0C4A
KEY	012C	0C17, 0C2A, 0C3B, 0C42, 0C4F, 0C65, 0C9B
KEY1N	010F	0C17
KLMT	0CC9	0CED
K0001	0CC8	0C20, 0CB1, 0CBE, 0CAF
K0005	0CCC	0CB6, 0C95
K000B	0CCD	0C2E, 0C57
LGROP	043F	0C17
LWC	043E	0C17
MONSW	0CCA	0C22, 0C5E, 0C78
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17, 0CBC
SER	0132	0C17, 0C70, 0CC1, 0CF6, 0CF9, 0000
SE001	0DDE	0C72, 0CC3, 0CF8, 0CFB
SE005	0DF5	0002
SIL	012F	0C17, 0C3C
SILSW	0130	0C17, 0C46
SKA	0C6D	
SKA1	0CEB	0CE6
SKB	0C86	0CF5
SKE01	0CF6	0C2C
SKE02	0C70	0C30
SKE03	0CF9	0C55
SKE04	0CC1	0C5B
SKE05	0CFC	0CE9
SK1N0	0135	0C17
SK1N1	0134	0C17
SK11	0C17	0CB6
SK12	0C1B	0CBB
SK13	0C19	0CBA
SK14	0C1A	0CFC
SK50	0CAD	0CAB
SKS1	0CB4	0CB0
SKX	0CE2	0CE1, 0CF1, 0CF4
SKX1	0CE4	0CEF
SK2	0C36	0CA4
SK3	0C6C	0C61
SK4	0C73	0C6B
SK5	0CBB	0C6F, 0C70
SK5A	0C99	0CB2, 0CBA, 0C90
SK6	0CA6	0CA1, 0CB3, 0CB5
SK7	0CA2	0C8B, 0C97, 0CAC
SKB	0CDB	0CA5
SK9	0C1C	0C1F
SM1	0003	0C2B
SM2	0027	0C3A
SM3	0D4A	0C44
SM5	0075	0C51
SM6	0093	0C67
SM7	003D	0C9D
SRTRY	0441	0CFE
SSUER	012E	0C17, 0C24, 0C36, 0C40, 0C4D, 0C63, 0C99
STBF	0440	0C17
SWB1	0C01	0C1C, 0C60, 0C74, 0C76, 0C7A, 0CBE, 0CE4
SWB10	0C0A	0CA8, 0CA9, 0CC9
SWB2	0C02	0C0F

SWB3	0C03	
SWB4	0C04	
SWB5	0CD5	
SWB6	0C06	
SWB7	0C07	
SWB8	0C0B	
SWB9	0C09	
S2	013A	0C17, 0CBF
S4	0C5C	0C5A, 0C7F, 0C84, 0C8C, 0C93, 0CAD
TBL	0CC5	0CA6
TEMP	0CC4	0C3E, 0C48, 0C4C, 0C6C, 0C73, 0CEC, 0CEE
TERM	043D	0C17
TRFX	043C	0C17
TYCT	0CCF	0C32, 0CA2
TYCT1	0CD0	0C34, 0CDB
T2	0C63	0C60
WCC	043A	0C17
ZERO	0437	0C17

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0000                        ORG     *+3095
012C                KEY     EQU     300
0120                CKYN    EQU     KEY+1
012E                SSUER   EQU     CKYN+1
012F                SIL     EQU     SSUER+1
0130                SILSW   EQU     SIL+1
0131                SCH     EQU     SILSW+1
0132                SER     EQU     SCH+1
0133                SECSU   EQU     SER+1
0134                SKIN1   EQU     SECSU+1
0135                SKING   EQU     SKIN1+1
0136                POKYB   EQU     SKING+1
0137                PHKYB   EQU     POKYB+1
013B                ENOO    EQU     PHKYB+1
013A                S2      EQU     ENOO+2
013E                BINRY   EQU     S2+4
01DF                KEYIN   EQU     BINRY+161
0437                ZERO    EQU     KEYIN+600
043B                BGNR    EQU     ZERO+1
0439                ERR     EQU     BGNR+1
043A                WCC     EQU     ERR+1
043B                MTRM    EQU     WCC+1
043C                TRFX    EQU     MTRM+1
0430                TERM    EQU     TRFX+1
043E                LWC     EQU     TERM+1
043F                LGROP   EQU     LWC+1
0440                STBF    EQU     LGROP+1
0441                SRTRY   EQU     STBF+1
0C17 0  0006        SKI1    OC      /0006
0C18 0  FFFF        SKI2    OC      /FFFF
0C19 0  0000        SKI3    OC      0
0C1A 0  0000        SKI4    DC      0
0C1B 00 4C000138    ENO1    BSC  L  ENOO
0C1E    0C1B                ENO     ENO1
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                    C4061001
                    C4061002
                    C4061003
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                    C4061021
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                    C4061024
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                    C4061030
                    C4061031
                    C4061032
                    C4061033
C406103             C4061043
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	0120	0C17
ENOO	013B	0C17, 0C1B
ENO1	0C1B	0C10
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKING	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C1B	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                                  C40700D1
012C                KEY EQU     300                                     C40700D2
012D                CKYN EQU    KEY+1                                   C4070003
012E                SSUER EQU   CKYN+1                                  C4070004
012F                SIL EQU     SSUER+1                                 C4070005
0130                SILSW EQU   SIL+1                                   C4070006
0131                SCH EQU     SILSW+1                                 C4070007
0132                SER EQU     SCH+1                                   C4070008
0133                SECSU EQU   SER+1                                   C4070009
0134                SKIN1 EQU   SECSU+1                                 C4070010
0135                SKINO EQU   SKIN1+1                                 C4070011
0136                PDKY8 EQU   SKINO+1                                 C4070012
0137                PHKY8 EQU   PDKY8+1                                 C4070013
0138                END0 EQU    PHKY8+1                                 C4070014
013A                S2 EQU      END0+2                                  C4070015
013E                8INRY EQU   S2+4                                    C4070016
01DF                KEYIN EQU   8INRY+161                               C4070017
0437                ZERO EQU    KEYIN+600                               C4070018
0438                8GNR EQU    ZERO+1                                  C4070019
0439                ERR EQU     8GNR+1                                  C4070020
043A                WCC EQU     ERR+1                                   C4070021
0438                MTRM EQU    WCC+1                                   C4070022
043C                TRFX EQU    MTRM+1                                  C4070023
043D                TERM EQU    TRFX+1                                  C4070024
043E                LWC EQU     TERM+1                                  C4070025
043F                LGROP EQU   LWC+1                                   C4070026
0440                ST8F EQU    LGROP+1                                 C4070027
0441                SRTRY EQU   ST8F+1                                  C4070028
0C17 0  0007        SKI1 DC     /0007       PID                         C4070029
0C18 0  0000        SKI2 DC     /0000       CD NO                       C407003D
0C19 0  0003        SKI3 DC     /0003       NO ENTRIES                  C4070031
0C1A 00 4480012E    SKI4 8SI  I SSUER       SET ERROR RETURN      SRC   C4070032
0C1C 00 4480012C         8SI  I KEY         ENTER IL              SRC   C4070033
0C1E 1  0C89             DC     SM1                                      C4070034
0C1F 0  8120             DC     /8120                                    C4070035
                *                                                       C4070036
0C20 00 4480012F         8SI  1 SIL         CK INT LVL            SRC   C4070037
0C22 01 D4000C84         STO  L SW81        SAVE                        C4070038
                *                                                       C4070039
0C24 00 4480012E    SK1A 8SI  I SSUER       SET ERROR RETURN      SRC   C4070040
0C26 00 4480012C         8SI  I KEY         ENTER ILSW            SRC   C4070041
0C28 1  0CAB             DC     SM2                                      C4070042
0C29 0  8120             DC     /8120                                    C4070043
                *                                                       C4070044
0C2A 00 44800130         8SI  I SILSW       CK ILSW BIT           SRC   C4070045
0C2C 01 D4000C85         STO  L SW82        SAVE                        C4070046
                *                                                       C4070047
0C2E 00 4480012E         BSI  I SSUER       SET ERROR RETURN      SRC   C4070048
0C30 00 4480012C         8SI  I KEY         ENTER CHANNEL         SRC   C4070049
0C32 1  0CCC             DC     SM3                                      C4070050
0C33 0  8110             DC     /8110                                    C4070051
                *                                                       C4070052
0C34 00 44800131         BSI  I SCH         CK CHANNEL            SRC   C4070053
0C36 01 D4000C86         STO  L SW83        SAVE                        C4070054
                *                                                       C4070055
0C38 00 4480012E         BSI  I SSUER       SET ERROR RETURN      SRC   C4070056
0C3A 00 4480012C         8SI  I KEY         IS DR 0 A 9 TRK       SRC   C4070057
0C3C 1  0CEA             DC     SM4                                      C4070058
0C3D 0  8000             DC     /8000                                    C4070059
                *                                                       C407006D
0C3E 00 4480012D         8SI  I CKYN        CK FOR Y OR N         SRC   C4070061
0C40 0  7005             MDX    SK1E        ENTRY WAS Y                 C4070062
                *                                                       C4070063
                *                   DRIVE IS 7 TRACK                    C4070064
                *                                                       C4070065
0C41 01 C4000C82    SK1B LD   L TR7         SET DR 0 = 7 TRK            C4070066
0C43 01 D4000C87         STO  L SW84        SAVE                        C4070067
0C45 0  7004             MDX    SK1C                                     C4070068
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                *                                                       C4070069
                *                   DRIVE IS 9 TRACK                    C407007D
                *                                                       C4070071
0C46 01 C4000C83    SK1E LD   L TR9         SET DR 0 = 9 TRK            C4070072
0C48 01 D4000C87         STO  L SW84        SAVE                        C4070073
                *                                                       C4070074
0C4A 00 4480012E    SK1C 8SI  I SSUER       SET ERROR RETURN      SRC   C4070075
0C4C 00 4480012C         8SI  I KEY         IS DR 1 AVAIL         SRC   C4070076
0C4E 1  0D09             DC     SM5                                      C4070077
0C4F 0  8000             DC     /8000                                    C4070078
                *                                                       C4070079
0C50 00 4480012D         8SI  I CKYN        CK FOR Y OR N         SRC   C4070080
0C52 0  7001             MDX    SK15        ENTRY WAS Y                 C4070081
0C53 0  7013             MDX    SK1F        ENTRY WAS N                 C4070082
                *                                                       C4070083
0C54 00 4480012E    SK15 8SI  I SSUER       SET ERROR RETURN      SRC   C4070084
0C56 00 4480012C         8SI  I KEY         IS DR 1 9 TRK         SRC   C4070085
0C58 1  0D28             DC     SM5                                      C4070086
0C59 0  8000             DC     /8000                                    C4070087
                *                                                       C4070088
0C5A 00 4480012D         BSI  I CKYN        CK FOR Y OR N         SRC   C4070089
0C5C 0  7005             MDX    SK20        ENTRY WAS Y                 C4070090
                *                                                       C4070091
                *                   DRIVE 1 IS 7 TRACK                  C4070092
                *                                                       C4070093
0C5D 01 C4000C82    SK18 LD   L TR7         SET DR 1 = 7 TRK            C4070094
0C5F 01 D4000C88         STO  L SW85        SAVE                        C4070095
0C61 0  7009             MDX    SK21                                     C4070096
                *                                                       C4070097
                *                   DRIVE 1 IS 9 TRACK                  C4070098
                *                                                       C4070099
0C62 01 C4000C83    SK20 LD   L TR9         SET DR 1 = 9 TRK            C4070100
0C64 01 D4000C88         STO  L SW85        SAVE                        C4070101
0C66 0  7004             MDX    SK21                                     C4070102
0C67 00 C400043D    SK1F LD   L TERM        SET DR 1 NOT AVAIL          C4070103
0C69 01 D4000C88         STO  L SW85        SAVE                        C4070104
0C6B 01 65000C84    SK21 LDX  L1 SW81       BUILD DDEF                  C4070105
0C6D 0  C100             LD   1 0                                       C4070106
0C6E 0  F101             EOR  1 1                                       C4070107
0C6F 0  F102             EOR  1 2                                       C4070108
0C70 0  0100             STO  1 0           SAVE                        C4070109
                *                                                       C4070110
0C71 01 C4000C87         LD   L SW84        SET DR 0-NO TRKS            C4070111
0C73 0  D101             STO  1 1                                       C4070112
                *                                                       C4070113
0C74 01 C4000C88         LD   L SW85        SET DR 1-NO TRKS            C4070114
0C76 0  D102             STO  1 2                                       C4070115
                *                                                       C4070116
0C77 01 66800C18         LDX  I2 SKI2       SET IXING                   C4070117
0C79 01 65800C17         LDX  I1 SKI1                                   C4070118
0C78 01 67800C19         LDX  I3 SKI3                                   C4070119
                *                                                       C4070120
0C7D 00 448001 33        8SI  I SECSU       SET CARD              SRC   C4070121
0C7F 1  0C84             DC     SW81                                     C4070122
0C80 00 4C00013A         8SC  L S2          EXIT                        C4070123
                *                                                       C4070124
                *                                                       C4070125
0C82 0  0001        TR7  DC     /0001       CONSTANTS                   C4070126
0C83 0  0000        TR9  DC     /0000                                   C4070127
0C84 0  0000        SW81 DC     0           ENTRY STORAGE               C4070128
0C85 0  0000        SW82 DC     0                                       C4070129
0C86 0  0000        SW83 DC     0                                       C407013D
0C87 0  0000        SW84 DC     0                                       C4070131
0C88 0  0000        SW85 DC     0                                       C4070132
                *                                                       C4070133
0C89    0012        SM1  EBC    .C001  PID 07-CD 00.                    C4070134
0C92    0012             EBC    .  ENTER 2 DIGIT DE.                    C4070135
0C98    0012             EBC    .CIMAL INTRPT LVL F.                    C4070136
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0CA4    0008            EBC     .OR MAG TAPE.
0CAA 0  FFFF            DC      /FFFF
                *
0CAB    0012    SM2     EBC     .C002  PID 07-CD 00.
0CB4    0012            EBC     .  ENTER 2 DIGIT DE.
0CBD    0012            EBC     .CIMAL ILSW BIT FOR.
0CC6    0009            EBC     . MAG TAPE.
0CCB 0  FFFF            DC      /FFFF
                *
0CCC    0012    SM3     EBC     .C003  PID 07-CD 00.
0CD5    0012            EBC     .  ENTER 1 DIGIT DE.
0CDE    0012            EBC     .CIMAL CH FOR MAG T.
0CE7    0003            EBC     .APE.
0CE9 0  FFFF            DC      /FFFF
                *
0CEA    0012    SM4     EBC     .C013  PID 07-CD 00.
0CF3    0012            EBC     .  IS TAPE DR 0 A 9.
0CFC    0012            EBC     . TRACK DRIVE-TYPE .
0D05    0006            EBC     .Y OR N.
0D0B 0  FFFF            DC      /FFFF
                *
0D09    0012    SM5     EBC     .C005  PID 07-CD 00.
0D12    0012            EBC     .  DOES THIS SYSTEM.
0D1B    0012            EBC     . HAVE 2 DRS-TYPE Y.
0D24    0005            EBC     . OR N.
0D27 0  FFFF            DC      /FFFF
                *
0D28    0012    SM6     EBC     .C013  PID 07-CD 00.
0D31    0012            EBC     .  IS DR 1 A 9 TRK .
0D3A    0012            EBC     .DRIVE-TYPE Y OR N .
0D43 0  FFFF            DC      /FFFF
                *
0D44 00 4C00013B END1   BSC  L  ENDO
0D46    0D44            END     END1
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C4070137
C4070138
C4070139
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C4070164
C4070165
C4070166
C4070167
C4070168
C4070169
C407016 C4070179
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17,0C3E,0C50,0C5A
ENDO	013B	0C17,0D44
END1	0D44	0D46
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C30,0C3A,0C4C,0C56
KEYIN	01DF	0C17
LGRCP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKY8	0137	0C17
SCH	0131	0C17,0C34
SECSU	0133	0C17,0C7D
SER	0132	0C17
SIL	012F	0C17,0C20
SILSW	0130	0C17,0C2A
SKIN0	0135	0C17
SKIN1	0134	0C17
SK11	0C17	0C79
SK12	0C1B	0C77
SK13	0C19	0C78
SK14	0C1A	
SK15	0C54	0C52
SK18	0C5D	
SK1A	0C24	
SK1B	0C41	
SK1C	0C4A	0C45
SK1E	0C46	0C40
SK1F	0C67	0C53
SK20	0C62	0C5C
SK21	0C6B	0C61,0C66
SM1	0CB9	0C1E
SM2	0CAB	0C28
SM3	0CCC	0C32
SM4	0CEA	0C3C
SM5	0D09	0C4E
SM6	0D28	0C58
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C2E,0C38,0C4A,0C54
STBF	0440	0C17
SWB1	0CB4	0C22,0C6B,0C7F
SWB2	0CB5	0C2C
SWB3	0CB6	0C36
SWB4	0CB7	0C43,0C48,0C71
SWB5	0CB8	0C5F,0C64,0C69,0C74
S2	013A	0C17,0C80
TERM	043D	0C17,0C67
TRFX	043C	0C17
TR7	0CB2	0C41,0C5D
TR9	0CB3	0C46,0C62
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                  C4071001
012C                KEY EQU     300                     C4071002
0120                CKYN EQU    KEY+1                   C4071003
012E                SSUER EQU   CKYN+1                  C4071004
012F                SIL EQU     SSUER+1                 C4071005
0130                SILSW EQU   SIL+1                   C4071006
0131                SCH EQU     SILSW+1                 C4071007
0132                SER EQU     SCH+1                   C4071008
0133                SECSU EQU   SER+1                   C4071009
0134                SKIN1 EQU   SECSU+1                 C4071010
0135                SKIN0 EQU   SKIN1+1                 C4071011
0136                PDKYB EQU   SKIN0+1                 C4071012
0137                PHKYB EQU   PDKYB+1                 C4071013
0138                ENO0 EQU    PHKYB+1                 C4071014
013A                S2 EQU      ENO0+2                  C4071015
013E                BINRY EQU   S2+4                    C4071016
010F                KEYIN EQU   BINRY+161               C4071017
0437                ZERO EQU    KEYIN+600               C4071018
0438                BGNR EQU    ZERO+                   C4071019
0439                ERR EQU     BGNR+                   C4071020
043A                WCC EQU     ERR+1                   C4071021
0438                MTRM EQU    WCC+1                   C4071022
043C                TRFX EQU    MTRM+1                  C4071023
0430                TERM EQU    TRFX+1                  C4071024
043E                LWC EQU     TERM+1                  C4071025
043F                LGROP EQU   LWC+1                   C4071026
0440                STBF EQU    LGROP+1                 C4071027
0441                SRTRY EQU   STBF+1                  C4071028
0C17 0  0007        SKI1 OC     /0007                   C4071029
0C18 0  FFFF        SKI2 OC     /FFFF                   C4071030
0C19 0  0000        SKI3 OC     /0000                   C4071031
0C1A 0  0000        SKI4 OC     /0000                   C4071032
0C18 00 4C000138    ENO1 BSC  L ENO0                    C4071033
0C1E    0C18            END     ENO1            C407103 C4071043
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	0120	0C17
ENO0	0138	0C17, 0C18
ENO1	0C18	0C10
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    DRG     **3095                                  C4080001
012C                KEY EQU     300                                     C4080002
012D                CKYN EQU    KEY+1                                   C4080003
012E                SSUER EQU   CKYN+1                                  C4080004
012F                SIL EQU     SSUER+1                                 C4080005
0130                SILSW EQU   SIL+1                                   C4080006
0131                SCH EQU     SILSW+1                                 C4080007
0132                SER EQU     SCH+1                                   C4080008
0133                SECSU EQU   SER+1                                   C4080009
0134                SKIN1 EQU   SECSU+1                                 C4080010
0135                SKINO EQU   SKIN1+1                                 C4080011
0136                PDKY8 EQU   SKINO+1                                 C4080012
0137                PHKY8 EQU   POKY8+1                                 C4080013
0138                ENDO EQU    PHKY8+1                                 C4080014
013A                S2 EQU      ENOO+2                                  C4080015
013E                81NKY EQU   S2+4                                    C4080016
01DF                KEYIN EQU   BINRY+161                               C4080017
0437                ZERD EQU    KEYIN+600                               C4080018
0438                BGNR EQU    ZERD+1                                  C4080019
0439                ERR EQU     8GNR+1                                  C4080020
043A                WCC EQU     ERR+1                                   C4080021
0438                MTRM EQU    WCC+1                                   C4080022
043C                TRFX EQU    MTRM+1                                  C4080023
0430                TERM EQU    TRFX+1                                  C4080024
043E                LWC EQU     TERM+1                                  C4080025
043F                LGRDP EQU   LWC+1                                   C4080026
0440                STBF EQU    LGRDP+1                                 C4080027
0441                SRTRY EQU   STBF+1                                  C4080028
0C17 0  0008        SKII  OC    /0008       PIO                         C4080029
0C18 0  0000        SKI2  DC    /0000       CD NO                       C4080030
0C19 0  000B        SKI3  DC    /000B       NO ENTRIES                  C4080031
0C1A 00 4480012E    SKI4  BSI I SSUER       SET ERROR RETURN      SRC   C4080032
0C1C 00 4480012C          BSI I KEY         ENTER NO DEVICES      SRC   C4080033
0C1E 1  0E91              DC    SM10                                    C4080034
0C1F 0  8110              OC    /8110                                   C4080035
*                                                                       C4080036
0C20 00 C400013E          LO  L 8INRY       GET ENTRY                   C4080037
0C22 01 4C180CE6          BSC L SKE05,+-    BRANCH IF ZERD              C4080038
0C24 01 84000C05          CMP L K0003       CK MAX                      C4080039
0C26 0  7027              MOX   SKE06       BRANCH IF TOO GREAT         C4080040
0C27 0  1000              NOP   0                                       C4080041
0C28 01 D4000C06          STO L NOOEV       SAVE ENTRY                  C4080042
0C2A 0  6303              LOX   3 3                                     C4080043
0C2B 01 65000F20          LDX   L1 SWB1                                 C4080044
0C20 0  6203        SKOO  LOX   2 3                                     C4080045
0C2E 01 6D000CC7    SKO   STX   L1 SKA1+1   SAVE IXING                 C4080046
0C30 01 6E000CC9          STX   L2 SKA2+1   *                           C4080047
0C32 01 6F000CC8          STX   L3 SKA3+1   *                           C4080048
0C34 01 C4000CCE          LO  L ERRET       SET ERROR RETURN            C4080049
0C36 00 D4000441          STO L SRTRY       *                           C4080050
0C38 01 C6000F10          LO  L2 T8L-1      GET FORM                    C4080051
0C3A 0  D009              STD   SK2         SET                         C4080052
0C3B 01 C7000F29          LO  L3 T8L3-1     GET TBL ADRS                C4080053
0C3D 0  D001              STD   SK21+1      SET                         C4080054
0C3E 00 C6000000    SK21  LO  L2 0          GET MSG AORS                C4080055
0C40 0  0002              STO   SK1         SET                         C4080056
0C41 00 4480012C          BSI I KEY         PRINT                 SRC   C4080057
0C43 1  0D71        SK1   OC    SM1                                     C4080058
0C44 0  8120        SK2   OC    /8120                                   C4080059
0C45 01 4E800CE8          BSC 12 CK-1       CHECK OATA            SRC   C4080060
0C47 0  0100        SK20  STO   1 0         SAVE                        C4080061
0C48 0  7101              MOX   1 1         INCR IX 1                   C4080062
0C49 0  72FF              MDX   2 -1        OECR IX 2                   C4080063
0C4A 0  70E3              MOX   SKO         LOCP                        C4030064
0C4B 0  73FF        SK5   MOX   3 -1        OECR IX 3                   C4080065
0C4C 0  7004              MOX   SK4         CHECK FOR NEXT OR           C4080066
0C4O 0  7006              MDX   SK6         ALL ORS COMPLETE            C4080067
0C4E 00 44800132    SKE06 BSI I SFR         NO ORIVE GREATER 3    SRC   C4080068
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                        DC      SE007                                   C4080069
0C50 1  0D54                                                            C4080070
0C51 01 74FF0C06    SK4 MDX L   NOOEV,-1  OECR NO OF OVICES             C4080071
0C53 0  7009            MOX     SK00      LOOP                          C4080072
0C54 01 65000F20    SK6 LOX L1  SW81      SET IXING                     C4080073
0C56 01 67000F20        LOX L3  SW81                                    C4080074
0C58 0  6203            LOX   2 3                                       C4080075
0C59 0  C100        SK7 LO    1 0         BUILO OOEFS                   C4080076
0C5A 0  F101            EOR   1 1                                       C4080077
0C5B 0  F102            EOR   1 2                                       C4080078
0C5C 0  0300            STO   3 0         SAVE                          C4080079
0C5D 0  7103            MOX   1 3         INCR IX 1                     C4080080
0C5E 0  7301            MOX   3 1         INCR IX 3                     C4080081
0C5F 0  72FF            MDX   2 -1        OECR IX 2                     C4080082
0C60 0  70F6            MOX     SK7       LOOP                          C4080083
0C61 00 4480012E        BSI I SSUER       SET ERROR RETURN      SRC     C4080084
0C63 00 4480012C        BSI I KEY         AORS CHANGE WANTEO    SRC     C4080085
0C65 1  0E82            DC      SM12                                    C4080086
0C66 0  8000            OC      /8000                                   C4080087
0C67 00 44800120        BSI I CKYN        CHECK FOR Y OR N      SRC     C4080088
0C69 0  7001            MOX     SK10      ENTRY WAS Y                   C4080089
0C6A 0  7049            MOX     OUT       ENTRY WAS N                   C4080090
0C6B 00 4480012E    SK10 BSI I SSUER      SET ERROR RETURN      SRC     C4080091
0C6D 00 4480012C        BSI I KEY         ENTER 3 DIGIT AORS    SRC     C4080092
0C6F 1  0E04            DC      SM13                                    C4080093
0C70 0  8050            OC      /8050                                   C4080094
0C71 00 C400010E        LO  L KEYIN-1     GET WO CT                     C4080095
0C73 0  B058            CMP     K0056     CK FOR MAX                    C4080096
0C74 0  7062            MOX     SKE00                                   C4080097
0C75 0  1000            NOP     0                                       C4080098
0C76 00 6580010E        LDX I1 KEYIN-1    SET IXING                     C4080099
0C78 00 660001DF        LDX L2 KEYIN                                    C4080100
*                                                                       C4080101
0C7A 0  C200        SK14 LO   2 0         GET ENTRY                     C4080102
0C7B 00 0400010F        STO L KEYIN       MOVE                          C4080103
0C7D 00 C4000430        LO  L TERM        GET TERM                      C4080104
0C7F 00 040001E0        STO L KEYIN+1     SET                     SRC   C4080105
0C81 00 44800136        BSI 1 PDKY8       CONVERT OATA                  C4080106
0C83 0  0001            DC      1                                       C4080107
0C84 0  0437            OC      ZERO                                    C4080108
0C85 00 C400013E        LD  L 8INRY       GET OATA                      C4080109
0C87 01 4C160CD0        BSC L SKE02,+-    ERROR                         C4080110
0C89 0  8046            CMP     K0008     CK FOR MAX                    C4080111
0C8A 0  704F            MOX     SKE01     ERROR                         C4080112
0C8B 0  1000            NOP     0                                       C4080113
0C8C 0  0020            STO     SK13+2                                  C4080114
0C8D 0  C202            LO    2 2         GET ENTRY                     C4080115
0C8E 00 0400010F        STO L KEYIN       MOVE DATA                     C4080116
0C90 0  C203            LD    2 3                                       C4080117
0C91 00 040001E0        STO L KEYIN+1                                   C4080118
0C93 0  C204            LD    2 4                                       C4080119
0C94 00 040001E1        STD L KEYIN+2                                   C4080120
*                                                                       C4080121
0C96 00 C400043D        LO  L TERM        GET TERM                      C4080122
0C98 00 040001E2        STO L KEYIN+3     SET                     SRC   C4080123
0C9A 00 44800136        BSI I POKYB       CONVERT ENTRIES               C4080124
0C9C 0  0003            OC      3                                       C4080125
0C9D 0  0437            OC      ZERO                                    C4080126
0C9E 00 C400013E        LD  L 8INRY       GET OATA                      C4080127
0CA0 0  8031            CMP     K0089     CK FOR OK                     C4080128
0CA1 0  7002            MOX     SK11      CONTINUE CKING                C4080129
0CA2 0  1000            NOP     0                                       C4080130
0CA3 0  7007            MOX     SK13      ENTRY OK                      C4080131
0CA4 0  802E        SK11 CMP    K0111     CK AORS                       C4080132
0CA5 0  7002            MDX     SK12      CONTINUE CKING                C4080133
0CA6 0  703C            MOX     SKE04     ERROR                         C4080134
0CA7 0  7003            MOX     SK13      ENTRY OK                      C4080135
0CA8 0  8028        SK12 CMP    K0202                                   C4080136
0CA9 0  7036            MOX     SKE03     ERROR
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0CAA 0  1000            NOP    0
0CAB 0  1003      SK13  SLA    3          MUL BY 8                        C4080137
0CAC 00 67000000        LDX  L3 0                                         C4080138
0CAE 01 D7000F37        STO  L3 SW811                                     C4080139
0CB0 0  7301            MDX    3 1                                        C4080140
0CB1 0  7206            MDX    2 6                                        C4080141
0CB2 G  7IFA            MDX    1 -6                                       C4080142
0CB3 0  70C6            MOX    SK14                                       C4080143
0CB4 0  6I08      OUT   LDX    1 8         SET IXING                      C4080144
0CB5 01 C5000F37  SK15  LD   L1 SW811                                     C4080145
0CB7 01 D5000F2F        STO  L1 SW83                                      C4080146
0CB9 0  7IFF            MOX    1 -1        DECR IX 1                      C4080147
0CBA 0  70FA            MOX    SK15                                       C4080148
0CBB 0I 65800C17        LDX  I1 SKI1       SET IXING                      C4080149
0CBD 0I 66800C18        LDX  I2 SKI2                                      C4080150
0CBF 01 67800C19        LDX  I3 SKI3                                      C4080151
0CC1 00 44800133        BSI  I  SECSU      SET UP CARD          SRC       C4080152
0CC3 1  0F2D            OC      SW81                                      C4080153
0CC4 00 4C00013A        BSC  L  S2         EXIT                           C4080154
0CC6 00 65000060  SKA1  LDX  L1 0          RESTORE IXING                  C4080155
0CC8 00 66000000  SKA2  LDX  L2 0          *                              C4080156
0CCA 00 67000000  SKA3  LDX  L3 0          *                              C4080157
0CCC 01 4C000C2E        BSC  L  SK0        ERROR RE-ENTRY                 C4080158
0CCE 1  0CC6      ERRET DC       SKA1      ERROR RETURN                   C4080159
0CCF 0  0031      K0056 DC       49        CONSTANTS                      C4080160
0CD0 0  0008      K0008 DC       8                                        C4080161
0CD1 0  0657      K0657 DC       /0657                                    C4080162
0CD2 0  0059      K0089 DC       89                                       C4080163
0CD3 0  006F      K0111 DC       111                                      C4080164
0CD4 0  00CA      K0202 DC       202                                      C4080165
0CD5 0  0003      K0003 DC       3                                        C4080166
0CD6 0  0000      NODEV DC       0                                        C4080167
0CD7 00 44800132  SKE00 BSI  I   SER        TOO MANY ADRSS       SRC       C4080168
0CD9 1  0CF8            DC       SE001                                    C4080169
0CDA 00 44800132  SKE01 BSI  I   SER        FIELD TOO GREAT      SRC       C4080170
0CDC 1  0CF8            DC       SE001                                    C4080171
0CDD 00 44800132  SKE02 BSI  I   SER        FLD WAS ZERO         SRC       C4080172
0CDF 1  0CF8            OC       SE001                                    C4080173
0CE0 00 44800132  SKE03 BSI  I   SER        ADRS TOO GREAT       SRC       C4080174
0CE2 1  0D0F            DC       SE004                                    C4080175
0CE3 00 44800132  SKE04 BSI  I   SER        ILLEGAL ADRS         SRC       C4080176
0CE5 1  0023            DC       SE005                                    C4080177
0CE6 00 44800132  SKE05 BSI  I   SER        NUMBER DRS = 0       SRC       C4080178
0CE8 1  0D3C            DC       SE006                                    C4080179
0CE9 1  0CFC      CK    OC       CH                                       C4080180
0CEA 1  0CF0            DC       ILSW                                     C4080181
0CEB 1  0CF4            DC       IL                                       C4080182
0CEC 00 44800131  CH    BSI  I   SCH        CK CHANNEL           SRC       C4080183
0CEE 01 4C000C47        BSC  L   SK20                                     C4080184
0CF0 00 44800130  ILSW  BSI  I   SILSW      CK ILSW BIT          SRC       C4080185
0CF2 01 4C000C47        BSC  L   SK20                                     C4080186
0CF4 00 4480012F  IL    BSI  I   SIL        CK INTR LVL          SRC       C4080187
0CF6 01 4C000C47        BSC  L   SK20                                     C4080188
                  *                                                       C4080189
0CF8    0012      SE001 EBC      .E007  PID 08-CD 00.                     C4080190
0D01    0012            EBC      .  ENTRY TOO LARGE .                     C4080191
0D0A    0007            EBC      .OR 0000.                                C4080192
000E 0  FFFF            DC       /FFFF                                    C4080193
                  *                                                       C4080194
0D0F    0012      SE004 EBC      .E00A  PID 08-CD 00.                     C4080195
0D18    0012            EBC      .  ADRS IS TOO GREA.                     C4080196
0D21    0001            EBC      .T.                                      C4080197
0D22 0  FFFF            OC       /FFFF                                    C4080198
                  *                                                       C4080199
0023    0012      SE005 EBC      .E008  PID 08-CD 00.                     C4080200
002C    0012            EBC      .  ADRS WAS BETWEEN.                     C4080201
0D35    0008            EBC      . 90 AND 110.                            C4080202
0D38 0  FFFF            DC       /FFFF                                    C4080203
                                                                          C4080204
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                  *                                                       C4080205
0D3C    0012      SE006 EBC      .E00B  PID 08-CD 00.                     C4080206
0D45    0012            EBC      .  NUMBER OF DEVICE.                     C4080207
0D4E    000A            EBC      .S WAS 0000.                             C4080208
0D53 0  FFFF            DC       /FFFF                                    C4080209
                  *                                                       C4080210
0D54    0012      SE007 EBC      .E009  PID 08-CD 00.                     C4080211
0D5D    0012            EBC      .  NUMBER OF DEVICE.                     C4080212
0D66    0012            EBC      .S WAS GREATER THAN.                     C4080213
006F    0002            E8C      . 3.                                     C4080214
0D70 0  FFFF            DC       /FFFF                                    C4080215
                  *                                                       C4080216
0071    0012      SM1   E8C      .C001  PID 08-CD 00.                     C4080217
0D7A    0012            EBC      .  ENTER 2 DIGIT DE.                     C4080218
0D83    0012            EBC      .CIMAL INTR LVL FOR.                     C4080219
0D8C    0009            E8C      . 1ST 2310.                              C4080220
0091 0  FFFF            OC       /FFFF                                    C4080221
                  *                                                       C4080222
0D92    0012      SM2   EBC      .C002  PID 08-CD 00.                     C4080223
0D9B    0012            EBC      .  ENTER 2 DIGIT DE.                     C4080224
0DA4    0012            EBC      .CIMAL ILSW BIT FOR.                     C4080225
0DA0    0009            E8C      . 1ST 2310.                              C4080226
0DB2 0  FFFF            DC       /FFFF                                    C4080227
                  *                                                       C4080228
0083    0012      SM3   EBC      .C003  PID 08-CD 00.                     C4080229
0D8C    0012            EBC      .  ENTER 1 DIGIT DE.                     C4080230
0DC5    0012            EBC      .CIMAL CH FOR 1ST 2.                     C4080231
0DCE    0003            EBC      .310.                                    C4080232
0D00 0  FFFF            DC       /FFFF                                    C4080233
                  *                                                       C4080234
0DD1    0012      SM4   EBC      .C001  PID 08-CD 00.                     C4080235
0DDA    0012            EBC      .  ENTER 2 DIGIT DE.                     C4080236
0DE3    0012            EBC      .CIMAL INTR LVL FOR.                     C4080237
0DEC    0009            EBC      . 2ND 2310.                              C4080238
0DF1 0  FFFF            DC       /FFFF                                    C4080239
                  *                                                       C4080240
0DF2    0012      SM5   EBC      .C002  PID 08-CD 00.                     C4080241
0DFB    0012            EBC      .  ENTER 2 DIGIT DE.                     C4080242
0E04    0012            EBC      .CIMAL ILSW BIT FOR.                     C4080243
0E0D    0009            E8C      . 2ND 2310.                              C4080244
0E12 0  FFFF            DC       /FFFF                                    C4080245
                  *                                                       C4080246
0E13    0012      SM6   EBC      .C003  PID 08-CD 00.                     C4080247
0E1C    0012            EBC      .  ENTER 1 DIGIT DE.                     C4080248
0E25    0012            EBC      .CIMAL CH FOR 2ND 2.                     C4080249
0E2E    0003            EBC      .310.                                    C4080250
0E30 0  FFFF            DC       /FFFF                                    C4080251
                  *                                                       C4080252
0E31    0012      SM7   EBC      .C001  PID 08-CD 00.                     C4080253
0E3A    0012            EBC      .  ENTER 2 DIGIT DE.                     C4080254
0E43    0012            EBC      .CIMAL INTR LVL FOR.                     C4080255
0E4C    0009            EBC      . 3RD 2310.                              C4080256
0E51 0  FFFF            DC       /FFFF                                    C4080257
                  *                                                       C4080258
0E52    0012      SM8   EBC      .C002  PID 08-CD 00.                     C4080259
0E58    0012            EBC      .  ENTER 2 DIGIT DE.                     C4080260
0E64    0012            EBC      .CIMAL ILSW BIT FOR.                     C4080261
0E6D    0009            EBC      . 3RD 2310.                              C4080262
0E72 0  FFFF            DC       /FFFF                                    C4080263
                  *                                                       C4080264
0E73    0012      SM9   E8C      .C003  PID 08-CD 00.                     C4080265
0E7C    0012            EBC      .  ENTER 1 DIGIT DE.                     C4080266
0E85    0012            E8C      .CIMAL CH FOR 3RD 2.                     C4080267
0E6E    0003            E8C      .310.                                    C4080268
0E90 0  FFFF            DC       /FFFF                                    C4080269
                  *                                                       C4080270
GE91    0012      SM10  EBC      .C004  PID 08-CD 00.                     C4080271
0E9A    0012            E8C      .  ENTER NUMBER OF .                     C4080272
```

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0EA3  0012          EBC   .2310S ON SYSTEM-FR.
0EAC  0009          EBC   .DM 1 TO 3.
0E81 0 FFFF         DC    /FFFF
                    *
0E82  0012    SM12  EBC   .C006  PID 08-CD 00.
0E8B  0012          EBC   .  ARE ADRS REFEREN.
0EC4  0012          EBC   .CE CHANGES DESIRED.
0ECD  000C          EBC   .-TYPE Y OR N.
0E03 0 FFFF         DC    /FFFF
                    *
0E04  0012    SM13  EBC   .C007  P10 08-CD 00.
0E00  0012          EBC   .  ENTER 1 DIGIT DE.
0EE6  0012          EBC   .CIMAL FLD NUMBER T.
0EEF  0012          EBC   .O BE CHANGED FOLLC.
0EF8  0012          EBC   .WEDSBY 3 DIGIT DEC.
0F01  0012          EBC   .IMAL ADRS DESIRED-.
0F0A  0012          EBC   .1-8 ENTRIES IN FCL.
0F13  0012          EBC   .LOWING FORMATSD CD.
0F1C  0002          EBC   .D,.
0F10 0 FFFF         DC    /FFFF
                    *
0F1E 0 8110   TBL   DC    /8110
0F1F 0 8120         DC    /8120
0F20 0 8120         DC    /8120
                    *
0F21 1 0D83   T8L1  DC    SM3
0F22 1 0D92         DC    SM2
0F23 1 0D71         DC    SM1
                    *
0F24 1 0E13   TBL4  DC    SM6
0F25 1 0DF2         DC    SM5
0F26 1 0001         DC    SM4
                    *
0F27 1 0E73   T8L5  DC    SM9
0F28 1 0E52         DC    SM8
0F29 1 0E31         DC    SM7
                    *
                    *
0F2A 1 0F26   T8L3  DC    T8L5-1
0F2B 1 0F23         DC    T8L4-1
0F2C 1 0F20         DC    TBL1-1
                    *
0F2D 0 0000   SWB1  DC    0
0F2E 0 0000   SWB2  DC    0
0F2F 0 0000   SWB3  DC    0
0F30 0 0000   SWB4  DC    0
0F31 0 0000   SWB5  DC    0
0F32 0 0000   SWB6  DC    0
0F33 0 0000   SWB7  DC    0
0F34 0 0000   SWB8  DC    0
0F35 0 0000   SWB9  DC    0
0F36 0 0000   SWB10 DC    0
0F37 0 0000   SWB11 DC    0
0F38 0 0000   SWB12 DC    /0000
0F39 0 0008   SWB13 DC    /0008
0F3A 0 0010   SWB14 DC    /0010
0F3B 0 0018   SWB15 DC    /0018
0F3C 0 0638   SWB16 DC    /0638
0F3D 0 0640   SWB17 DC    /0640
0F3E 0 0648   SWB18 DC    /0648
0F3F 0 0650   SWB19 DC    /0650
0F40 00 4C000138 EN01 BSC L ENDO
0F42    0F40        END   END1
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C4080273
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C4080332
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C4080334
C408033 C4080344
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0436	0C17
BINRY	013E	0C17, 0C20, 0CB5, 0C9E
CH	0CEC	0CE9
CK	0CE9	0C45
CKYN	012D	0C17, 0C67
END0	0138	0C17, 0F40
END1	0F40	0F42
ERR	0439	0C17
ERRET	0CCE	0C34
IL	0CF4	0CEB
ILSW	0CF0	0CEA
KEY	012C	0C17, 0C1C, 0C41, 0C63, 0C6D
KEYIN	01DF	0C17, 0C71, 0C76, 0C78, 0C7B, 0C7F, 0C8E, 0C91, 0C94, 0C98
K0003	0CD5	0C24
K0008	0CD0	0C89
K0056	0CCF	0C73
K0089	0C02	0CA0
K0111	0CD3	0CA4
K0202	0C04	0CA8
K0657	0CD1	
LGRDP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
NOOEV	0C06	0C28, 0C51
OUT	0C84	0C6A
POKYB	0136	0C17, 0C81, 0C9A
PHKYB	0137	0C17
SCH	0131	0C17, 0CEC
SECSU	0133	0C17, 0CC1
SER	0132	0C17, 0C4E, 0C07, 0C0A, 0C00, 0CE0, 0CE3, 0CE6
SE001	0CF8	0C09, 0C0C, 0C0F
SE004	0D0F	0CE2
SE005	0D23	0CE5
SE006	003C	0CE8
SE007	0054	0C50
SIL	012F	0C17, 0CF4
SILSW	0130	0C17, 0CF0
SKA1	0CC6	0C2E, 0CCE
SKA2	0CC8	0C30
SKA3	0CCA	0C32
SKE00	0CD7	0C74
SKE01	0CDA	0C8A
SKE02	0CD0	0C87
SKE03	0CE0	0CA9
SKE04	0CE3	0CA6
SKE05	0CE6	0C22
SKE06	0C4E	0C26
SKIN0	0135	0C17
SKIN1	0134	0C17
SK11	0C17	0C8B
SK12	0C18	0C8D
SK13	0C19	0CBF
SK14	0C1A	
SK0	0C2E	0C4A, 0CCC
SK00	0C2D	0C53
SK1	0C43	0C40
SK10	0C6B	0C69
SK11	0CA4	0CA1
SK12	0CA8	0CA5
SK13	0CAB	0C8C, 0CA3, 0CA7
SK14	0C7A	0CB3
SK15	0CB5	0C8A
SK2	0C44	0C3A
SK20	0C47	0CEE, 0CF2, 0CF6
SK21	0C3E	0C3D

CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-08-0

```
SK4      0C51      0C4C
SK5      0C4B
SK6      0C54      0C40
SK7      0C59      0C60
SM1      0D71      0C43,CF23
SM10     0E91      0C1E
SM12     0EB2      0C65
SM13     0E04      0C6F
SM2      0092      0F22
SM3      0083      0F21
SM4      0001      0F26
SM5      00F2      0F25
SM6      0E13      0F24
SM7      0E31      0F29
SM8      0E52      0F2B
SM9      0E73      0F27
SRTRY    0441      0C36
SSUER    012E      0C17,0C1A,0C61,0C6B
STBF     0440      0C17
SWB1     0F20      0C2B,0C54,0C56,0CC3
SWB10    0F36
SWB11    0F37      0CAE,0CB5
SWB12    0F3B
SWB13    0F39
SWB14    0F3A
SWB15    0F3B
SWB16    0F3C
SWB17    0F3D
SWB18    0F3E
SWB19    0F3F
SWB2     0F2E
SWB3     0F2F      0CB7
SWB4     0F30
SWB5     0F31
SWB6     0F32
SWB7     0F33
SWB8     0F34
SWB9     0F35
S2       013A      0C17,0CC4
TBL      0F1E      0C3B
TBL1     0F21      0F2C
TBL3     0F2A      0C3B
TBL4     0F24      0F2B
TBL5     0F27      0F2A
TERM     0430      0C17,0C70,0C96
TRFX     043C      0C17
WCC      043A      0C17
ZERO     0437      0C17,0CB4,0C9D
```


CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-08-1

```
0000                           ORG      *+3095              C40B1001
012C                  KEY      EQU      300                 C40B1002
0120                  CKYN     EQU      KEY+1               C40B1003
012E                  SSUER    EQU      CKYN+1              C40B1004
012F                  SIL      EQU      SSUER+1             C40B1005
0130                  SILSW    EQU      SIL+1               C40B1006
0131                  SCH      EQU      SILSW+1             C40B1007
0132                  SER      EQU      SCH+1               C40B1008
0133                  SECSU    EQU      SER+1               C40B1009
0134                  SKIN1    EQU      SECSU+1             C40B1010
0135                  SKINO    EQU      SKIN1+1             C40B1011
0136                  PDKYB    EQU      SKINO+1             C40B1012
0137                  PHKYB    EQU      POKYB+1             C40B1013
013B                  ENOO     EQU      PHKYB+1             C40B1014
013A                  S2       EQU      ENOO+2              C40B1015
013E                  BINRY    EQU      S2+4                C40B1016
010F                  KEYIN    EQU      BINRY+161           C40B1017
0437                  ZERO     EQU      KEYIN+600           C40B1018
0438                  BGNR     EQU      ZERO+1              C40B1019
0439                  ERR      EQU      BGNR+1              C40B1020
043A                  WCC      EQU      ERR+1               C40B1021
043B                  MTRM     EQU      WCC+1               C40B1022
043C                  TRFX     EQU      MTRM+1              C40B1023
0430                  TERM     EQU      TRFX+1              C40B1024
043E                  LWC      EQU      TERM+1              C40B1025
043F                  LGROP    EQU      LWC+1               C40B1026
0440                  STBF     EQU      LGROP+1             C40B1027
0441                  SRTRY    EQU      STBF+1              C40B1028
0C17 0   000B         SKI1     DC       /000B               C40B1029
0C1B 0   FFFF         SKI2     DC       /FFFF               C40B1030
0C19 0   0000         SKI3     DC       0                   C40B1031
0C1A 0   0000         SKI4     DC       0                   C40B1032
0C1B 00  4C000139     END1     BSC   L  ENOO                C40B1033
0C1E     0C1B                  ENO      ENO1        C40B103 C40B1043
```

CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-08-1

CRUSS REFERENCE LISTING

```
SYMBOL  VALUE   REFERENCES
BGNR    0438    0C17
BINRY   013E    0C17
CKYN    012D    0C17
ENOO    0138    0C17,0C1B
END1    0C1B    0C1D
ERR     0439    0C17
KEY     012C    0C17
KEYIN   01DF    0C17
LGROP   043F    0C17
LWC     043E    0C17
MTRM    043B    0C17
PDKYB   0136    0C17
PHKYB   0137    0C17
SCH     0131    0C17
SECSU   0133    0C17
SER     0132    0C17
SIL     012F    0C17
SILSW   0130    0C17
SKINO   0135    0C17
SKIN1   0134    0C17
SKI1    0C17
SKI2    0C18
SKI3    0C19
SKI4    0C1A
SRTRY   0441
SSUER   012E    0C17
STBF    0440    0C17
S2      013A    0C17
TERM    043D    0C17
TRFX    043C    0C17
WCC     043A    0C17
ZERO    0437    0C17
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CPIO-DIAG MON SKELETONS   SKELETON ID 08C4-09-0

```
0000                        ORG     *+3095                                C4090001
012C               KEY      EQU     300                                   C4090002
012D               CKYN     EQU     KEY+1                                 C4090003
012E               SSUER    EQU     CKYN+1                                C4090004
012F               SIL      EQU     SSUER+1                               C4090005
0130               SILSW    EQU     SIL+1                                 C4090006
0131               SCH      EQU     SILSW+1                               C4090007
0132               SER      EQU     SCH+1                                 C4090008
0133               SECSU    EQU     SER+1                                 C4090009
0134               SKIN1    EQU     SECSU+1                               C4090010
0135               SKINO    EQU     SKIN1+1                               C4090011
0136               PDKYB    EQU     SKINO+1                               C4090012
0137               PHKYB    EQU     POKYB+1                               C4090013
0138               ENDO     EQU     PHKYB+1                               C4090014
013A               S2       EQU     ENDO+2                                C4090015
013E               BINRY    EQU     S2+4                                  C4090016
01DF               KEYIN    EQU     BINRY+161                             C4090017
0437               ZERO     EQU     KEYIN+600                             C4090018
0438               BGNR     EQU     ZERO+1                                C4090019
0439               ERR      EQU     BGNR+I                                C4090020
043A               WCC      EQU     ERR+1                                 C4090021
043B               MTRM     EQU     WCC+1                                 C4090022
043C               TRFX     EQU     MTRM+1                                C4090023
043D               TERM     EQU     TRFX+1                                C4090024
043E               LWC      EQU     TERM+1                                C4090025
043F               LGROP    EQU     LWC+1                                 C4090026
0440               STBF     EQU     LGRDP+1                               C4090027
0441               SRTRY    EQU     STBF+1                                C4090028
0C17 0  0009       SKI1     DC      /0009                                 C4090029
0C18 0  0000       SKI2     DC      /0000      CD NO                      C4090030
0C19 0  0006       SKI3     DC      /0008      NO ENTRIES                 C4090031
0C1A 00 4480012E   SKI4     BSI   I SSUER      SET ERROR PETURN     SRC   C4090032
0C1C 00 4480012C            BSI   I KEY        ENTER NO DEVICES     SRC   C4090033
0C1E 1  0E91                DC      SM10                                  C4090034
0C1F 0  8110                DC      /8110                                 C4090035
                   *                                                      C4090036
0C20 00 C400013E            LD    L BINRY      GET ENTRY                  C4090037
0C22 01 4C180CE6            BSC   L SKE05,+-   BRANCH IF ZERO             C4090038
0C24 01 84000CD5            CMP   L K0003      CK MAX                     C4090039
0C26 0  7027                MDX     SKE06      BRANCH IF TOO GREAT        C4090040
0C27 0  1000                NOP     0                                     C4090041
0C28 01 D4000CD6            STO   L NODEV      SAVE ENTRY                 C4090042
0C2A 0  6303                LDX   3 3                                     C4090043
0C2B 01 65000F2D            LDX  L1 SWB1                                  C4090044
0C2D 0  6203       SK00     LOX   2 3                                     C4090045
0C2E 01 6D000CC7   SK0      STX  L1 SKA1+1     SAVE IXING                 C4090046
0C30 01 6E000CC9            STX  L2 SKA2+1     *                          C4090047
0C32 01 6F000CCB            STX  L3 SKA3+1     *                          C4090048
0C34 01 C4000CCE            LD    L ERRET      SET ERROR RETURN           C4090049
0C36 00 D4000441            STO   L SRTRY      *                          C4090050
0C38 01 C6000F1D            LD   L2 TBL-1      GET FORM                   C4090051
0C3A 0  D009                STO     SK2        SET                        C4090052
0C3B 01 C7000F29            LD   L3 TBL3-1     GET TBL ADRS               C4090053
0C3D 0  D001                STO     SK21+1     SET                        C4090054
0C3E 00 C6000000   SK21     LD   L2 0          GET MSG AORS               C4090055
0C40 0  D002                STO     SK1        SET                        C4090056
0C41 00 4480012C            BSI   I KEY        PRINT                SRC   C4090057
0C43 1  0071       SK1      DC      SM1                                   C4090058
0C44 0  8120       SK2      DC      /8120                                 C4090059
0C45 01 4E800CEB            BSC  I2 CK-1       CHECK DATA           SRC   C4090060
0C47 0  D100       SK20     STO   1 0          SAVE                       C4090061
0C48 0  7101                MDX   1 1          INCR IX 1                  C4090062
0C49 0  72FF                MDX   2 -1         OECR IX 2                  C4090063
0C4A 0  70E3                MOX     SK0        LOOP                       C4090064
0C4B 0  73FF       SK5      MOX   3 -1         OECR IX 3                  C4090065
0C4C 0  7004                MDX     SK4        CHECK FOR NEXT DR          C4090066
0C4D 0  7006                MDX     SK6        ALL DRS COMPLETE           C4090067
0C4E 00 44800132   SKE06    BSI   I SER        BRANCH IF ERROR      SRC   C4090068
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0C50 1  0D54                    DC      SE007                                   C4090069
0C51 01 74FF0CD6        SK4     MDX   L NODEV,-1    OECR NO OF OVICES         C4090070
0C53 0  7009                    MDX     SK00        LOOP                      C4090071
0C54 01 65000F20        SK6     LOX   L1 SWB1       SET IXING                 C4090072
0C56 01 67000F2D                LOX   L3 SWB1                                 C4090073
0C56 0  6203                    LOX   2 3                                     C4090074
0C59 0  C100            SK7     LD    1 0           BUILD OOEFS               C4090075
0C5A 0  F101                    EOR   1 1                                     C4090076
0C58 0  F102                    EOR   1 2                                     C4090077
0C5C 0  0300                    STO   3 0           SAVE                      C4090078
0C5D 0  7103                    MDX   1 3           INCR IX 1                 C4090079
0C5E 0  7301                    MDX   3 1           INCR IX 3                 C4090080
0C5F 0  72FF                    MDX   2 -1          DECR IX 2                 C4090081
0C60 0  70FB                    MDX     SK7         LOOP                      C4090082
0C61 00 4480012E                BSI   I SSUER       SET ERROR RETURN    SRC   C4090083
0C63 00 4480012C                BSI   I KEY         AORS CHANGE WANTED  SRC   C4090084
0C65 1  0E82                    OC      SM12                                  C4090085
0C66 0  8000                    OC      /8000                                 C4090086
0C67 00 44800120                BSI   I CKYN        CHECK FOR Y OR N    SRC   C4090087
0C69 0  7001                    MDX     SK10        ENTRY WAS Y               C4090088
0C6A 0  7049                    MDX     OUT         ENTRY WAS N               C4090089
                        *                                                     C4090090
0C6B 00 4480012E        SK10    BSI   I SSUER       SET ERROR RETURN    SRC   C4090091
0C60 00 4480012C                BSI   I KEY         ENTER 3 DIGIT ADRS  SRC   C4090092
0C6F 1  0ED4                    OC      SM13                                  C4090093
0C70 0  8050                    OC      /8050                                 C4090094
0C71 00 C40001DE                LD    L KEYIN-1     GET WO CT                 C4090095
0C73 0  B058                    CMP     K0056       CK FOR MAX                C4090096
0C74 0  7062                    MDX     SKE00                                 C4090097
0C75 0  1000                    NOP     0                                     C4090098
0C76 00 658001DE                LDX   I1 KEYIN-1     SET IXING                C4090099
0C78 00 660001DF                LDX   L2 KEYIN                                C4090100
                        *                                                     C4090101
0C7A 0  C200            SK14    LD    2 0           GET ENTRY                 C4090102
0C78 00 040001DF                STO   L KEYIN       MOVE                      C4090103
0C7D 00 C4000430                LD    L TERM        GET TERM                  C4090104
0C7F 00 040001E0                STO   L KEYIN+1     SET                       C4090105
0C81 00 44800136                BSI   I PDKYB       CONVERT DATA        SRC   C4090106
0C83 0  0001                    DC      1                                     C4090107
0C84 0  0437                    OC      ZERO                                  C4090108
0C85 00 C400013E                LD    L BINRY       GET DATA                  C4090109
0C87 01 4C180C00                BSC   L SKE02,+-    BR IF ZERO                C4090110
0C89 0  B046                    CMP     K0008       CK FOR MAX                C4090111
0C8A 0  704F                    MDX     SKE01       ERROR                     C4090112
0C88 0  1000                    NOP     0                                     C4090113
0C8C 0  D020                    STO     SK13+2                                C4090114
                        *                                                     C4090115
0C8D 0  C202                    LD    2 2           GET ENTRY                 C4090116
0C8E 00 D400010F                STO   L KEYIN       MOVE DATA                 C4090117
0C90 0  C203                    LD    2 3                                     C4090118
0C91 00 040001E0                STO   L KEYIN+1                               C4090119
0C93 0  C204                    LD    2 4                                     C4090120
0C94 00 040001E1                STO   L KEYIN+2                               C4090121
                        *                                                     C4090122
0C96 00 C4000430                LD    L TERM        GET TERM                  C4090123
0C98 00 040001E2                STO   L KEYIN+3     SET                       C4090124
0C9A 00 44800136                BSI   I POKYB       CONVERT ENTRIES     SRC   C4090125
0C9C 0  0003                    OC      3                                     C4090126
0C9D 0  0437                    DC      ZERD                                  C4090127
0C9E 00 C400013E                LD    L BINRY       GET DATA                  C4090128
0CA0 0  8031                    CMP     K0089       CK FOR OK                 C4090129
0CA1 0  7002                    MDX     SK11        CONTINUE CKING            C4090130
0CA2 0  1000                    NOP     0                                     C4090131
0CA3 0  7007                    MDX     SK13        ENTRY OK                  C4090132
0CA4 0  802F            SK11    CMP     K0111       CK ADRS                   C4090133
0CA5 0  7002                    MDX     SK12        CONTINUE CKING            C4090134
0CA6 0  703C                    MDX     SKE04       ERROR                     C4090135
0CA7 0  7003                    MDX     SK13        ENTRY OK                  C4090136
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0CAB 0  B02A            SK12    CMP     K0202                                 C4090137
0CA9 0  7036                    MDX     SKE03       ERRDR                     C4090138
0CAA 0  1000                    NOP     0                                     C4090139
0CA8 0  1003            SK13    SLA     3           MUL BY 8                  C4090140
0CAC 00 67000000                LDX   L3 0                                     C4090141
0CAE 01 D7000F37                STD   L3 SWB11                                C4090142
0C80 0  7301                    MDX   3 1                                     C4090143
0C81 0  7206                    MDX   2 6                                     C4090144
0C82 0  71FA                    MDX   1 -6                                    C4090145
0C83 0  70C6                    MDX     SK14                                  C4090146
0C84 0  6108            OUT     LDX   1 8           SET IXING                 C4090147
0C85 01 C5000F37        SK15    LD    L1 SWB11                                C4090148
0C87 01 D5000F2F                STD   L1 SWB3                                 C4090149
0C89 0  71FF                    MDX   1 -1          DECR IX 1                 C4090150
0C8A 0  70FA                    MDX     SK15                                  C4090151
0C88 01 65800C17                LDX   I1 SKI1       SET IXING                 C4090152
0C8D 01 66800C18                LDX   I2 SKI2                                 C4090153
0C8F 01 67800C19                LDX   I3 SKI3                                 C4090154
0CC1 00 44800133                BSI   I SECSU       SET UP CARD         SRC   C4090155
0CC3 1  0F2D                    DC      SW81                                  C4090156
0CC4 00 4C00013A                BSC   L S2          EXIT                      C4090157
0CC6 00 65000000        SKA1    LDX   L1 0           RESTORE IXING             C4090158
0CC8 00 66000000        SKA2    LDX   L2 0           *                         C4090159
0CCA 00 67000000        SKA3    LDX   L3 0           *                         C4090160
0CCC 01 4C000C2E                BSC   L SK0         ERRCR RE-ENTRY            C4090161
0CCE 1  0CC6            ERRET   OC      SKA1        ERROR RETURN              C4090162
0CCF 0  0031            K0056   DC      49          CONSTANTS                 C4090163
0CD0 0  0008            K0008   OC      8                                     C4090164
0CD1 0  0657            K0657   DC      /0657                                 C4090165
0CD2 0  0059            K0089   OC      89                                    C4090166
0CD3 0  00CA            K0202   DC      202                                   C4090167
0CD4 0  006F            K0111   DC      111                                   C4090168
0CD5 0  0003            K0003   DC      3                                     C4090169
0CD6 0  0000            NODEV   DC      0                                     C4090170
0CD7 00 44800132        SKE00   BSI   I SER         TOO MANY ADRSS      SRC   C4090171
0CD9 1  0CF8                    DC      SE001                                 C4090172
0CDA 00 44800132        SKE01   BSI   I SER         FIELD TOO GREAT     SRC   C4090173
0CDC 1  0CF8                    OC      SE001                                 C4090174
0CDD 00 44800132        SKE02   BSI   I SER         FLD WAS ZERO        SRC   C4090175
0CDF 1  0CF8                    OC      SE001                                 C4090176
0CE0 00 44800132        SKE03   BSI   I SER         AORS TOO GREAT      SRC   C4090177
0CE2 1  0DUF                    OC      SE004                                 C4090178
0CE3 00 44800132        SKE04   BSI   I SER         ILLEGAL ADRS        SRC   C4090179
0CE5 1  0023                    OC      SE005                                 C4090180
0CE6 00 44800132        SKE05   BSI   I SER         ND DR = 0           SRC   C4090181
0CE8 1  0D3C                    DC      SE006                                 C4090182
0CE9 1  0CEC            CK      DC      CH                                    C4090183
0CEA 1  0CF0                    DC      ILSW                                  C4090184
0CE8 1  0CF4                    DC      IL                                    C4090185
0CEC 00 44800131        CH      BSI   I SCH         CK CHANNEL          SRC   C4090186
0CEE 01 4C000C47                BSC   L SK20                                  C4090187
0CF0 00 44800130        ILSW    BSI   I SILSW       CK ILSW BIT         SRC   C4090188
0CF2 01 4C000C47                BSC   L SK20                                  C4090189
0CF4 00 4480012F        IL      BSI   I SIL         CK INTR LVL         SRC   C4090190
0CF6 01 4C000C47                BSC   L SK20                                  C4090191
                        *                                                     C4090192
0CF8    0012            SE001   E8C     .E007  PIO 09-C0 00.                  C4090193
0001    0012                    E8C     .  ENTRY TOO LARGE .                  C4090194
000A    0007                    E8C     .OR 0C00.                             C4090195
000E 0  FFFF                    DC      /FFFF                                 C4090196
                        *                                                     C4090197
000F    0012            SE004   E8C     .E00A  PID 09-C0 00.                  C40901 98
0018    0012                    E8C     .  AORS IS TOO GREA.                  C4090199
0D21    0001                    E8C     .T.                                   C4090200
0022 0  FFFF                    DC      /FFFF                                 C4090201
                        *                                                     C4090202
0023    0012            SE005   E8C     .E008  PIO 09-C0 00.                  C4090203
0D2C    0012                    E8C     .  AORS WAS BETWEEN.                  C4090204
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0035    0008            EBC     . 90 AND 110.                   C4090205
0038 0  FFFF            DC      /FFFF                           C4090206
                *                                               C4090207
003C    0012    SED06   EBC     .E008  PID 09-CD 00.            C4090208
0045    0012            EBC     .  NUMBER OF DEVICE.            C4090209
004E    000A            EBC     .S WAS 0000.                    C4090210
0053 0  FFFF            DC      /FFFF                           C4090211
                *                                               C4090212
0054    0012    SE007   EBC     .E009  PID 09-CD 00.            C4090213
005D    0012            EBC     .  NUMBER OF DEVICE.            C4090214
0066    0012            EBC     .S WAS GREATER THAN.            C4090215
006F    0002            EBC     . 3.                            C4090216
0070 0  FFFF            DC      /FFFF                           C4090217
                *                                               C4090218
0071    0012    SM1     EBC     .C001  PID 09-CD 00.            C4090219
007A    0012            EBC     .  ENTER 2 DIGIT DE.            C4090220
0083    0012            EBC     .CIMAL INTR LVL FOR.            C4090221
008C    0009            EBC     . 1ST 2310.                     C4090222
0091 0  FFFF            DC      /FFFF                           C4090223
                *                                               C4090224
0092    0012    SM2     EBC     .C002  PID 09-CD 00.            C4090225
009B    0012            EBC     .  ENTER 2 DIGIT DE.            C4090226
00A4    0012            EBC     .CIMAL ILSW BIT FOR.            C4090227
00AD    0009            EBC     . 1ST 2310.                     C4090228
00B2 0  FFFF            DC      /FFFF                           C4090229
                *                                               C4090230
00B3    0012    SM3     EBC     .C003  PID 09-CD 00.            C4090231
00BC    0012            EBC     .  ENTER 1 DIGIT DE.            C4090232
00C5    0012            EBC     .CIMAL CH FOR 1ST 2.            C4090233
00CE    0003            EBC     .310.                           C4090234
00D0 0  FFFF            DC      /FFFF                           C4090235
                *                                               C4090236
00D1    0012    SM4     EBC     .C001  PID 09-CD 00.            C4090237
00DA    0012            EBC     .  ENTER 2 DIGIT DE.            C4090238
00E3    0012            EBC     .CIMAL INTR LVL FOR.            C4090239
00EC    0009            EBC     . 2ND 2310.                     C4090240
00F1 0  FFFF            DC      /FFFF                           C4090241
                *                                               C4090242
00F2    0012    SM5     EBC     .C002  PID 09-CD 00.            C4090243
00FB    0012            EBC     .  ENTER 2 DIGIT DE.            C4090244
0E04    0012            EBC     .CIMAL ILSW BIT FOR.            C4090245
0EDD    0009            EBC     . 2ND 2310.                     C4090246
0E12 0  FFFF            DC      /FFFF                           C4090247
                *                                               C4090248
0E13    0012    SM6     EBC     .C003  PID 09-CD 00.            C4090249
0E1C    0012            EBC     .  ENTER 1 DIGIT DE.            C4090250
0E25    0012            EBC     .CIMAL CH FOR 2ND 2.            C4090251
0E2E    0003            EBC     .310.                           C4090252
0E30 0  FFFF            DC      /FFFF                           C4090253
                *                                               C4090254
0E31    0012    SM7     EBC     .C001  PID 09-CD 00.            C4090255
0E3A    0012            EBC     .  ENTER 2 DIGIT DE.            C4090256
0E43    0012            EBC     .CIMAL INTR LVL FOR.            C4090257
0E4C    0009            EBC     . 3RD 2310.                     C4090258
0E51 0  FFFF            DC      /FFFF                           C4090259
                *                                               C4090260
0E52    0012    SM8     EBC     .C002  PID 09-CD 00.            C4090261
0E58    0012            EBC     .  ENTER 2 DIGIT DE.            C4090262
0E64    0012            EBC     .CIMAL ILSW BIT FOR.            C4090263
0E6D    0009            EBC     . 3RD 2310.                     C4090264
0E72 0  FFFF            DC      /FFFF                           C4090265
                *                                               C4090266
0E73    0012    SM9     EBC     .C003  PID 09-CD 00.            C4090267
0E7C    0012            EBC     .  ENTER 1 DIGIT DE.            C4090268
0E85    0012            EBC     .CIMAL CH FOR 3RD 2.            C4090269
0E8E    0003            EBC     .310.                           C4090270
0E9D 0  FFFF            DC      /FFFF                           C4090271
                *                                               C4090272
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0E91    0012    SM10    EBC     .C004  PID 09-CD 00.            C4090273
0E9A    0012            EBC     .  ENTER NUMBER OF .            C4090274
0EA3    0012            EBC     .2310S ON SYSTEM-FR.            C4090275
0EAC    0009            EBC     .OM 1 TO 3.                     C4090276
0EB1 0  FFFF            DC      /FFFF                           C4090277
                *                                               C4090278
0EB2    0012    SM12    EBC     .C006  PID 09-CD 00.            C4090279
0EB8    0012            EBC     .  ARE ADRS REFEREN.            C4090280
0EC4    0012            EBC     .CE CHANGES DESIRED.            C4090281
0ECD    000C            EBC     .-TYPE Y OR N.                  C4090282
0ED3 0  FFFF            DC      /FFFF                           C4090283
                *                                               C4090284
0ED4    0012    SM13    EBC     .C007  PID 09-CD 00.            C4090285
0EDD    0012            EBC     .  ENTER 1 DIGIT DE.            C4090286
0EE6    0012            EBC     .CIMAL FLD NUMBER T.            C4090287
0EEF    0012            EBC     .O BE CHANGED FOLLO.            C4090288
0EF8    0012            EBC     .WED$BY 3 DIGIT DEC.            C4090289
0F01    0012            EBC     .IMAL ADRS DESIRED-.            C4090290
0F0A    0012            EBC     .1-8 ENTRIES IN FCL.            C4090291
0F13    0012            EBC     .LOWING FORMAT$D CD.            C4090292
0F1C    0002            EBC     .D..                            C4090293
0F1D 0  FFFF            DC      /FFFF                           C4090294
                *                                               C4090295
0F1E 0  8110    TBL     DC      /8110                           C4090296
0F1F 0  8120            DC      /8120                           C4090297
0F20 0  8120            DC      /8120                           C4090298
                *                                               C4090299
0F21 1  0DB3    TBL1    DC      SM3                             C4090300
0F22 1  0092            DC      SM2                             C4090301
0F23 1  0D71            DC      SM1                             C4090302
                *                                               C4090303
0F24 1  0E13    TBL4    DC      SM6                             C4090304
0F25 1  0DF2            DC      SM5                             C4090305
0F26 1  0DD1            DC      SM4                             C4090306
                *                                               C4090307
0F27 1  0E73    TBL5    DC      SM9                             C4090308
0F28 1  0E52            DC      SM8                             C4090309
0F29 1  0E31            DC      SM7                             C409031D
                *                                               C4090311
                *                                               C4090312
0F2A 1  0F26    TBL3    DC      TBL5-1                          C4090313
0F2B 1  0F23            DC      TBL4-1                          C4090314
0F2C 1  0F20            DC      TBL1-1                          C4090315
                *                                               C4090316
0F2D 0  0000    SWB1    DC      0                               C409031?
0F2E 0  0000    SWB2    DC      0                               C4090318
0F2F 0  0000    SWB3    DC      0                               C4090319
0F30 0  0000    SWB4    DC      0                               C4090320
0F31 0  0000    SWB5    DC      0                               C4090321
0F32 0  0000    SWB6    DC      0                               C4090322
0F33 0  0000    SWB7    DC      0                               C4090323
0F34 0  0000    SWB8    DC      0                               C4090324
0F35 0  0000    SWB9    DC      0                               C4090325
0F36 0  0000    SWB10   DC      0                               C4090326
0F37 0  0000    SWB11   DC      0                               C4090327
0F38 0  0000    SWB12   DC      /000D                           C4090328
0F39 0  0008    SWB13   DC      /0008                           C4090329
0F3A 0  0010    SWB14   DC      /0010                           C4090330
0F3B 0  0018    SWB15   DC      /0018                           C4090331
0F3C 0  0638    SWB16   DC      /0638                           C4090332
0F3D 0  0640    SWB17   DC      /0640                           C4090333
0F3E 0  0648    SWB18   DC      /0648                           C4090334
0F3F 0  0650    SWB19   DC      /0650                           C4090335
0F40 00 4C000138 END1   BSC  L  ENDD                            C4090336
0F42    0F40            END     END1                    C409033 C4090346
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17, 0C20, 0C85, 0C9E
CH	0CEC	0CE9
CK	0CE9	0C45
CKYN	0120	0C17, 0C67
END0	0138	0C17, 0F40
END1	0F40	0F42
ERR	0439	0C17
ERRET	0CCE	0C34
IL	0CF4	0CEB
ILSW	0CF0	0CEA
KEY	012C	0C17, 0C1C, 0C41, 0C63, 0C6D
KEYIN	010F	0C17, 0C71, 0C76, 0C7B, 0C78, 0C7F, 0C8E, 0C91, 0C94, 0C98
K0003	0CD5	0C24
K0008	0CDD	0C89
K0056	0CCF	0C73
K0089	0C02	0CA0
K0111	0C04	0CA4
K0202	0CD3	0CAB
K0657	0C01	
LGRDP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
NODEV	0CD6	0C28, 0C51
OUT	0C84	0C6A
POKYB	0136	0C17, 0C81, 0C9A
PHKYB	0137	0C17
SCH	0131	0C17, 0CEC
SECSU	0133	0C17, 0CC1
SER	0132	0C17, 0C4E, 0CD7, 0C0A, 0C00, 0CE0, 0CE3, 0CE6
SE001	0CF8	0C09, 0C0C, 0C0F
SE004	0D0F	0CE2
SE005	0D23	0CE5
SE006	0D3C	0CEB
SE007	0D54	0C50
SIL	012F	0C17, 0CF4
SILSW	0130	0C17, 0CF0
SKA1	0CC6	0C2E, 0CCE
SKA2	0CC8	0C30
SKA3	0CCA	0C32
SKE00	0CD7	0C74
SKE01	0CDA	0C8A
SKE02	0CDD	0C87
SKE03	0CE0	0CA9
SKE04	0CE3	0CA6
SKE05	0CE6	0C22
SKE06	0C4E	0C26
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0CBB
SKI2	0C18	0C8D
SK13	0C19	0C8F
SKI4	0C1A	
SK0	0C2E	0C4A, 0CCC
SK00	0C2D	0C53
SK1	0C43	0C40
SK10	0C6B	0C69
SK11	0CA4	0CA1
SK12	0CAB	0CA5
SK13	0CA8	0C8C, 0CA3, 0CA7
SK14	0C7A	0CB3
SK15	0C85	0CBA
SK2	0C44	0C3A
SK20	0C47	0CEE, 0CF2, 0CF6
SK21	0C3E	0C3D

SK4	0C51	0C4C
SK5	0C4B	
SK6	0C54	0C4D
SK7	0C59	0C60
SM1	0D71	0C43, 0F23
SM10	0E91	0C1E
SM12	0EB2	0C65
SM13	0ED4	0C6F
SM2	0D92	0F22
SM3	0DB3	0F21
SM4	0DD1	0F26
SM5	0DF2	0F25
SM6	0E13	0F24
SM7	0E31	0F29
SM8	0E52	0F28
SM9	0E73	0F27
SRTRY	0441	0C36
SSUER	012E	0C17, 0C1A, 0C61, 0C6B
STBF	0440	0C17
SWB1	0F2D	0C28, 0C54, 0C56, 0CC3
SWB10	0F36	
SWB11	0F37	0CAE, 0C85
SWB12	0F38	
SWB13	0F39	
SWB14	0F3A	
SWB15	0F3B	
SWB16	0F3C	
SWB17	0F3D	
SWB18	0F3E	
SWB19	0F3F	
SWB2	0F2E	
SWB3	0F2F	0C87
SWB4	0F30	
SWB5	0F31	
SWB6	0F32	
SWB7	0F33	
SWB8	0F34	
SWB9	0F35	
S2	013A	0C17, 0CC4
TBL	0F1E	0C38
TBL1	0F21	0F2C
TBL3	0F2A	0C3B
TBL4	0F24	0F2B
TBL5	0F27	0F2A
TERM	043D	0C17, 0C7D, 0C96
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17, 0C84, 0C9D

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0000                        ORG    **+3095
012C                KEY     EQU    300
0120                CKYN    EQU    KEY+1
012E                SSUER   EQU    CKYN+1
012F                SIL     EQU    SSUER+1
0130                SILSW   EQU    SIL+1
0131                SCH     EQU    SILSW+1
0132                SER     EQU    SCH+1
0133                SECSU   EQU    SER+1
0134                SKINI   EQU    SECSU+1
0135                SKINO   EQU    SKINI+1
0136                PDKYB   EQU    SKINO+1
0137                PHKYB   EQU    PDKYB+1
0138                ENOO    EQU    PHKYB+1
013A                S2      EQU    ENOO+2
013E                BINRY   EQU    S2+4
01DF                KEYIN   EQU    BINRY+161
0437                ZERO    EQU    KEYIN+600
0438                BGNR    EQU    ZERO+1
0439                ERR     EQU    BGNR+1
043A                WCC     EQU    ERR+1
043B                MTRM    EQU    WCC+1
043C                TRFX    EQU    MTRM+1
0430                TERM    EQU    TRFX+1
043E                LWC     EQU    TERM+1
043F                LGROP   EQU    LWC+1
0440                STBF    EQU    LGROP+1
0441                SRTRY   EQU    STBF+1
0C17 0  0009        SKI1    OC     /0009
0C18 0  FFFF        SKI2    OC     /FFFF
0C19 0  0000        SKI3    OC     0
0C1A 0  0000        SKI4    OC     0
0C1B 00 4C000138    END1    BSC  L ENOO
0C1E    0C1B                ENO    END1
```

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C4091001
C4091002
C4091003
C4091004
C4091005
C4091006
C4091007
C4091008
C4091009
C4091010
C4091011
C4091012
C4091013
C4091014
C4091015
C4091016
C4091017
C4091018
C4091019
C4091020
C4091021
C4091022
C4091023
C4091024
C4091025
C4091026
C4091027
C4091028
C4091029
C4091030
C4091031
C4091032
C4091033
C409103 C4091043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	0120	0C17
ENOO	0136	0C17, 0C1B
ENO1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKINI	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

CPIO-OIAG MON SKELETONS SKELETON ID-08C4-0A-0

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0000                    ORG    *+3095                        C40A0001
012C           KEY      EQU    300                           C40A0002
0120           CKYN     EQU    KEY+1                         C40A0003
012E           SSUER    EQU    CKYN+1                        C40A0004
012F           SIL      EQU    SSUER+1                       C40A0005
0130           SILSW    EQU    SIL+1                         C40A0006
0131           SCH      EQU    SILSW+1                       C40A0007
0132           SER      EQU    SCH+1                         C40A0008
0133           SECSU    EQU    SER+1                         C40A0009
0134           SKIN1    EQU    SECSU+1                       C40A0010
0135           SKINO    EQU    SKIN1+1                       C40A0011
0136           POKYB    EQU    SKINO+1                       C40A0012
0137           PHKYB    EQU    POKYB+1                       C40A0013
0138           ENOO     EQU    PHKYB+1                       C40A0014
013A           S2       EQU    ENOO+2                        C40A0015
013E           BINRY    EQU    S2+4                          C40A0016
010F           KEYIN    EQU    BINRY+161                     C40A0017
0437           ZERO     EQU    KEYIN+600                     C40A0018
0438           BGNR     EQU    ZERO+1                        C40A0019
0439           ERR      EQU    BGNR+1                        C40A0020
043A           WCC      EQU    ERR+1                         C40A0021
043B           MTRM     EQU    WCC+1                         C40A0022
043C           TRFX     EQU    MTRM+1                        C40A0023
043D           TERM     EQU    TRFX+1                        C40A0024
043E           LWC      EQU    TERM+1                        C40A0025
043F           LGROP    EQU    LWC+1                         C40A0026
0440           STBF     EQU    LGROP+1                       C40A0027
0441           SRTRY    EQU    STBF+1                        C40A0028
0C17 0  000A   SKI1     DC     /000A    PIO                  C40A0029
0C18 0  0000   SKI2     OC     /0000    CO NO                C40A0030
0C19 0  0003   SKI3     OC     /0003    NO ENTRIES           C40A0031
0C1A 00 4480012E SKI4   BSI  I SSUER    SET ERROR RETURN     SRC C40A0032
0C1C 00 4480012C        BSI  I KEY      ENTER IL 1ST 1443    SRC C40A0033
0C1E 1  0C5F            OC     SM1                           C40A0034
0C1F 0  8120            DC     /8120                         C40A0035
               *                                             C40A0036
0C20 00 4480012F        BSI  I SIL      CK INT LVL           SRC C40A0037
0C22 01 D4000C5C        STO  L SW81     SAVE                 C40A0038
               *                                             C40A0039
0C24 00 4480012E        BSI  I SSUER    SET ERROR RETURN     SRC C40A0040
0C26 00 4480012C        BSI  I KEY      ENTER ILSW 1ST 1443  SRC C40A0041
0C28 1  0C7F            DC     SM2                           C40A0042
0C29 0  8120            OC     /8120                         C40A0043
               *                                             C40A0044
0C2A 00 44800130        BSI  I SILSW    CK ILSW BIT          SRC C40A0045
0C2C 01 F4000C5C        EOR  L SWB1     BUILO OOEF           C40A0046
0C2E 01 04000C5C        STO  L SW81     SAVE                 C40A0047
               *                                             C40A0048
0C30 00 4480012E        BSI  I SSUER    SET ERROR RETURN     SRC C40A0049
0C32 00 4480012C        BSI  I KEY      ENTER CH 1ST 1443    SRC C40A0050
0C34 1  0C9E            DC     SM3                           C40A0051
0C35 0  8110            OC     /8110                         C40A0052
               *                                             C40A0053
0C36 00 44800131        BSI  I SCH      CK CH NO             SRC C40A0054
0C38 01 F4000C5C        EOR  L SWB1     BUILO ODEF           C40A0055
0C3A 01 04000C5C        STO  L SWB1     SAVE                 C40A0056
               *                                             C40A0057
0C3C 00 4480012E        BSI  I SSUER    SET ERROR RETURN     SRC C40A0058
0C3E 00 4480012C        BSI  I KEY      OCES 1ST HAVE 120    SRC C40A0059
0C40 1  0CBD            OC     SM4                           C40A0060
0C41 0  8000            OC     /8000                         C40A0061
               *                                             C40A0062
0C42 00 4480012D        BSI  I CKYN     CK FOR Y OR N        SRC C40A0063
0C44 0  7001            MOX    SK1      ENTRY WAS Y          C40A0064
0C45 0  7003            MOX    SK2      ENTRY WAS N          C40A0065
               *                                             C40A0066
0C46 0  C005   SK1      LD     K0078    GET 78               C40A0067
0C47 0  D016            STO    SWB3     SET                  C40A0068
```


CPIO-OIAG MON SKELETCNS SKELETON ID-08C4-0A-0

```
0C48 0  7005            MOX    SK3                           C40A0069
               *                                             C40A0070
0C49 0  C003   SK2      LO     K0090    GET 90               C40A0071
0C4A 0  0013            STO    SWB3     SET                  C40A0072
0C48 0  7002            MDX    SK3                           C40A0073
               *                                             C40A0074
0C4C 0  0078   K0078    OC     /0078    CONSTANTS            C40A0075
0C40 0  0090   K0090    DC     /0090                         C40A0076
0C4E 00 C4000430 SK3    LO   L TERM     GET FFFF             C40A0077
0C50 0  000C            STO    SWB2     SET                  C40A0078
0C51 01 65800C17 SK7    LDX  I1 SKI1    SET IXING            C40A0079
0C53 01 66800C18        LOX  I2 SKI2                         C40A0080
0C55 01 67800C19        LOX  I3 SKI3                         C40A0081
0C57 00 44800133        BSI  I SECSU    SET CARD         SRC C40A0082
0C59 1  0C5C            OC     SW81                          C40A0083
0C5A 00 4C00013A        BSC  L S2       EXIT                 C40A0084
               *                                             C40A0085
0C5C 0  0000   SWB1     DC     0        ENTRY STORAGE        C40A0086
0C50 0  0000   SWB2     OC     0                             C40A0087
0C5E 0  0000   SWB3     DC     0                             C40A0088
               *                                             C40A0089
0C5F    0012   SM1      EBC    .C001  PIO 0A-C0 00.          C40A0090
0C68    0012            EBC    .  ENTER 2 OIGIT OE.          C40A0091
0C71    0012            EBC    .CIMAL INTRPT LVL F.          C40A0092
0C7A    0007            EBC    .OR 1443.                     C40A0093
0C7E 0  FFFF            DC     /FFFF                         C40A0094
               *                                             C40A0095
0C7F    0012   SM2      EBC    .C002  PIO 0A-C0 00.          C40A0096
0C88    0012            EBC    .  ENTER 2 OIGIT OE.          C40A0097
0C91    0012            EBC    .CIMAL ILSW BIT FOR.          C40A0098
0C9A    0005            EBC    . 1443.                       C40A0099
0C9D 0  FFFF            OC     /FFFF                         C40A0100
               *                                             C40A0101
0C9E    0012   SM3      EBC    .C003  PIO 0A-C0 00.          C40A0102
0CA7    0012            EBC    .  ENTER I DIGIT OE.          C40A0103
0CB0    0012            EBC    .CIMAL CH NUMBER FO.          C40A0104
0CB9    0006            EBC    .R 1443.                      C40A0105
0CBC 0  FFFF            OC     /FFFF                         C40A0106
               *                                             C40A0107
0CBD    0012   SM4      EBC    .C038  PIO 0A-C0 00.          C40A0108
0CC6    0012            EBC    .  OOES 1443 HAVE 1.          C40A0109
0CCF    0012            EBC    .20 PRINT POSITIONS.          C40A0110
0CD8    000C            EBC    .-TYPE Y OR N.                C40A0111
0CDE 0  FFFF            OC     /FFFF                         C40A0112
               *                                             C40A0113
0CDF 00 4C000138 END1   BSC  L ENDO                          C40A0114
0CE2    0C0F            END    END1                  C40A011 C40A0124
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	012D	0C17, 0C42
ENDO	013B	0C17, 0CDF
END1	0CDF	0CE1
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C26, 0C32, 0C3E
KEYIN	010F	0C17
K0078	0C4C	0C46
K0090	0C4D	0C49
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17, 0C36
SECSU	0133	0C17, 0C57
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C2A
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C51
SKI2	0C18	0C53
SKI3	0C19	0C55
SK14	0C1A	
SK1	0C46	0C44
SK2	0C49	0C45
SK3	0C4E	0C48, 0C4B
SK7	0C51	
SM1	0C5F	0C1E
SM2	0C7F	0C28
SM3	0C9E	0C34
SM4	0CBD	0C40
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C24, 0C30, 0C3C
STBF	0440	0C17
SWB1	0C5C	0C22, 0C2C, 0C2E, 0C3B, 0C3A, 0C59
SWB2	0C5D	0C50
SWB3	0C5E	0C47, 0C4A
S2	013A	0C17, 0C5A
TERM	043D	0C17, 0C4E
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


```
0000                    DRG     *+3095
012C                KEY EQU     300
0120                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKINO EQU   SK1N1+1
0136                PDKYB EQU   SK1NO+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  000A        SK11 DC     /000A
0C1B 0  FFFF        SK12 DC     /FFFF
0C19 0  0000        SK13 DC     0
0C1A 0  0000        SK14 DC     0
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B                    END     END1
```

```
C40A1001
C40A1002
C40A1003
C40A1004
C40A1005
C40A1006
C40A1007
C40A1008
C40A1009
C40A1010
C40A1011
C40A1012
C40A1013
C40A1014
C40A1015
C40A1016
C40A1017
C40A1018
C40A1019
C40A1020
C40A1021
C40A1022
C40A1023
C40A1024
C40A1025
C40A1026
C40A1027
C40A1028
C40A1029
C40A1030
C40A1031
C40A1032
C40A1033
C40A103  C40A1043
```

DP10-DIAG MON SKELETONS SKELETON ID-08C4-0A-1

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0436	0C17
BINRY	013E	0C17
CKYN	0120	0C17
EN00	0138	0C17,0C1B
EN01	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C1B	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

DP10-DIAG MON SKELETONS SKELETON ID-08C4-0B-0

```
0000                     ORG    *+3095                          C40B0001
012C               KEY   EQU    300                             C40B0002
012D               CKYN  EQU    KEY+1                           C40B0003
012E               SSUER EQU    CKYN+1                          C40B0004
012F               SIL   EQU    SSUER+1                         C40B0005
0130               SILSW EQU    SIL+1                           C40B0006
0131               SCH   EQU    SILSW+1                         C40B0007
0132               SER   EQU    SCH+1                           C40B0008
0133               SECSU EQU    SER+1                           C40B0009
0134               SKIN1 EQU    SECSU+1                         C40B0010
0135               SKIN0 EQU    SKIN1+1                         C40B0011
0136               POKYB EQU    SKIN0+1                         C40B0012
0137               PHKYB EQU    PDKYB+1                         C40B0013
0138               EN00  EQU    PHKYB+1                         C40B0014
013A               S2    EQU    EN00+2                          C40B0015
013E               BINRY EQU    S2+4                            C40B0016
010F               KEYIN EQU    BINRY+161                       C40B0017
0437               ZERO  EQU    KEYIN+600                       C40B0018
0438               BGNR  EQU    ZERO+1                          C40B0019
0439               ERR   EQU    BGNR+1                          C40B0020
043A               WCC   EQU    ERR+1                           C40B0021
043B               MTRM  EQU    WCC+1                           C40B0022
043C               TRFX  EQU    MTRM+1                          C40B0023
043D               TERM  EQU    TRFX+1                          C40B0024
043E               LWC   EQU    TERM+1                          C40B0025
043F               LGROP EQU    LWC+1                           C40B0026
0440               STBF  EQU    LGROP+1                         C40B0027
0441               SRTRY EQU    STBF+1                          C40B0028
0C17 0  000B       SKI1  DC     /000B    PID                    C40B0029
0C18 0  0000       SKI2  DC     /0000    CO NO                  C40B0030
0C19 0  0002       SKI3  DC     /0002    NO OF ENTRIES          C40B0031
0C1A 00 4480012E   SKI4  BSI  1 SSUER    SET ERROR RETURN   SRC C40B0032
0C1C 00 4480012C         BSI  1 KEY      ENTER IL           SRC C40B0033
0C1E 1  0011             DC     SM1                             C40B0034
0C1F 0  8120             DC     /8120                           C40B0035
                   *                                            C40B0036
0C20 00 4480012F         BSI  1 SIL      CK IL              SRC C40B0037
0C22 01 D4000CB2         STO  L SWB1     SAVE                   C40B0038
                   *                                            C40B0039
0C24 00 4480012E         BSI  1 SSUER    SET ERROR RETURN   SRC C40B0040
0C26 00 4480012C         BSI  1 KEY      ENTER ILSW         SRC C40B0041
0C28 1  0032             DC     SM2                             C40B0042
0C29 0  8120             DC     /8120                           C40B0043
                   *                                            C40B0044
0C2A 00 44800130         BSI  1 SILSW    CK ILSW BIT        SRC C40B0045
0C2C 01 F4000CB2         EOR  L SWB1     BUILD DOEF             C40B0046
0C2E 01 D4000CB2         STO  L SWB1     SAVE                   C40B0047
                   *                                            C40B0048
0C30 00 4480012E         BSI  I SSUER    SET ERROR RETURN   SRC C40B0049
0C32 00 4480012C         BSI  I KEY      ENTER CH           SRC C40B0050
0C34 1  0053             DC     SM3                             C40B0051
0C35 0  8210             DC     /8210                           C40B0052
                   *                                            C40B0053
0C36 00 44800131         BSI  I SCH      CK CHANNEL         SRC C40B0054
0C38 0  F079             EOR    SWB1     BUILD DOEF             C40B0055
0C39 0  D078             STO    SWB1     SAVE                   C40B0056
                   *                                            C40B0057
0C3A 00 4480012E         BSI  1 SSUER    SET ERROR RETURN   SRC C40B0058
0C3C 00 4480012C         BSI  I KEY      2 DRS ON SYS       SRC C40B0059
0C3E 1  0071             DC     SM4                             C40B0060
0C3F 0  8000             DC     /8000                           C40B0061
                   *                                            C40B0062
0C40 00 44800120         BSI  I CKYN     CK FOR Y OR N      SRC C40B0063
0C42 0  7003             MDX    SK1      ENTRY WAS Y            C40B0064
                   *                                            C40B0065
0C43 0  C06A             LD     K0001    GET 1                  C40B0066
0C44 0  D06E             STO    SWB2     SET NOT AVAIL          C40B0067
0C45 0  7002             MDX    SK2                             C40B0068
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                         *                                                 C4080069
0C46 0  1010             SK1   SLA      16           SET AVAIL             C4080070
0C47 0  D06B                   STO      SWB2                               C4080071
                         *                                                 C4080072
0C48 01 65800C17         SK2   LDX   I1 SKI1         SET IXING             C4080073
0C4A 01 66800C18               LDX   I2 SKI2                               C4080074
0C4C 01 67800C19               LDX   I3 SKI3                               C4080075
                         *                                                 C4080076
0C4E 00 44800133               BSI   I  SECSU        SET CARD         SRC  C4080077
0C50 1  0CB2                   DC       SWB1                               C4080078
                         *                                                 C4080079
0C51 00 4480012E               BSI   I  SSUER        SET ERROR RETURN SRC  C4080080
0C53 00 4480012C               BSI   I  KEY          ARE WO CT CHGS DES SRC C4080081
0C55 1  0D92                   DC       SM5                                C4080082
0C56 0  8000                   DC       /8000                              C4080083
                         *                                                 C4080084
0C57 00 4480012D               BSI   I  CKYN         CK FOR Y OR N    SRC  C4080085
0C59 0  700B                   MDX      SK4          ENTRY WAS Y           C4080086
                         *                                                 C4080087
0C5A 01 65800C17         SK3   LDX   I1 SKI1         SET IXING             C4080088
0C5C 01 66800CBC               LDX   I2 SKI5                               C4080089
0C5E 01 67800CBD               LDX   I3 SKI6                               C4080090
                         *                                                 C4080091
0C60 00 44800133               BSI   I  SECSU        SET CARD         SRC  C4080092
0C62 1  0CB4                   DC       SWB3                               C4080093
                         *                                                 C4080094
0C63 00 4C00013A               BSC   L  S2           EXIT                  C4080095
                         *                                                 C4080096
0C65 00 4480012E         SK4   BSI   I  SSUER        SET ERROR RETURN SRC  C4080097
0C67 00 4480012C               BSI   I  KEY          ENTER REC WD CT, SRC  C4080098
0C69 1  0D82                   DC       SM6                                C4080099
0C6A 0  8040                   DC       /8040                              C4080100
                         *                                                 C4080101
0C6B 00 C40001DE               LD    L  KEYIN-1      GET WD CT             C4080102
0C6D 0  8041                   CMP      K0056        CK FOR MAX            C4080103
0C6E 0  704F                   MDX      SKE01        ERROR-TOO MANY        C4080104
0C6F 0  1000                   NOP      0                                  C4080105
0C70 00 650001DF               LDX   L1 KEYIN        SET IX                C4080106
0C72 0  C100             SK5   LD     1 0            GET ENTRY             C4080107
0C73 00 D40001DF               STO   L  KEYIN        SET                   C4080108
0C75 00 C400043D               LD    L  TERM         GET FFFF              C4080109
0C77 00 D40001E0               STO   L  KEYIN+1      SET                   C4080110
0C79 00 44800136               BSI   I  PDKY8        CONVERT          SRC  C4080111
0C7B 0  0001                   DC       1                                  C4080112
0C7C 0  0437                   DC       ZERO                               C4080113
0C7D 00 C400013E               LD    L  BINRY        GET REC NO            C4080114
0C7F 01 4C180CC7               BSC   L  SKE05,+-     ERROR                 C4080115
0C81 0  802F                   CMP      K0008        CK FOR MAX            C4080116
0C82 0  7041                   MDX      SKE04        TOO GREAT             C4080117
0C83 0  1000                   NOP      0                                  C4080118
0C84 0  D001                   STO      SK6+1        SET                   C4080119
0C85 00 67000000         SK6   LDX   L3 0            IX 3 = ENTRY          C4080120
0C87 0  7102                   MDX    1 2            INCR IX 1             C4080121
0C88 00 74FE01DE               MDX   L  KEYIN-1,-2   DECR WD CT            C4080122
0C8A 0  7003                   MDX      SK7                                C4080123
0C8B 00 44800132               BSI   I  SER          TOO FEW ENTRIES  SRC  C4080124
0C8D 1  0CCA                   DC       SE001                              C4080125
                         *                                                 C4080126
0C8E 0  C100             SK7   LD     1 0            SET ENTRIES           C4080127
0C8F 00 D40001DF               STO   L  KEYIN                              C4080128
0C91 0  C101                   LD     1 1                                  C4080129
0C92 00 D40001E0               STO   L  KEYIN+1                            C4080130
0C94 0  C102                   LD     1 2                                  C4080131
0C95 00 D40001E1               STO   L  KEYIN+2                            C4080132
0C97 0  C103                   LD     1 3                                  C4080133
0C98 00 D40001E2               STO   L  KEYIN+3                            C4080134
0C9A 00 C400043D               LD    L  TERM                               C4080135
0C9C 00 D40001E3               STO   L  KEYIN+4                            C4080136
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                         *                                                 C4080137
0C9E 00 44800136               BSI   I  PDKY8        CONVERT          SRC  C4080138
0CA0 0  0004                   DC       4                                  C4080139
0CA1 0  0437                   DC       ZERO                               C4080140
0CA2 00 C400013E               LD    L  BINRY        CK NUMBER             C4080141
0CA4 0  800B                   CMP      K1000                              C4080142
0CA5 0  7018                   MDX      SKE03        ERROR TOO GREAT       C4080143
0CA6 0  1000                   NOP      0                                  C4080144
0CA7 01 D7000CB3               STO   L3 SWB2         SAVE ENTRY            C4080145
0CA9 0  7105                   MDX    1 5            INCR IX 1             C4080146
0CAA 00 74FB01DE               MDX   L  KEYIN-1,-5   DECR WD CT            C4080147
0CAC 0  70C5                   MDX      SK5          GET NEXT              C4080148
0CAD 0  70AC                   MDX      SK3          COMPLETE              C4080149
                         *                                                 C4080150
0CAE 0  0001             K0001 DC       1            CONSTANTS             C4080151
0CAF 0  0038             K0056 DC       56                                 C4080152
0CB0 0  03E8             K1000 DC       1000                               C4080153
0CB1 0  0008             K0008 DC       8                                  C4080154
                         *                                                 C4080155
0CB2 0  0000             SWB1  DC       0            DATA STORAGE          C4080156
0CB3 0  0000             SWB2  DC       0                                  C4080157
0CB4 0  0000             SWB3  DC       0                                  C4080158
0CB5 0  0000                   DC       0                                  C4080159
0CB6 0  0000                   DC       0                                  C4080160
0CB7 0  0000                   DC       0                                  C4080161
0CB8 0  0000                   DC       0                                  C4080162
0CB9 0  0000                   DC       0                                  C4080163
0CBA 0  0000                   DC       0                                  C4080164
0CBB 0  0000                   DC       0                                  C4080165
                         *                                                 C4080166
0CBC 0  0001             SKI5  DC       /0001        CD ONE                C4080167
0CBD 0  0008             SKI6  DC       /0008        NO OF ENTRIES         C4080168
                         *                                                 C4080169
0CBE 00 44800132         SKE01 BSI   I  SER          TOO MANY WD CTS  SRC  C4080170
0CC0 1  0CCA                   DC       SE001                              C4080171
                         *                                                 C4080172
0CC1 00 44800132         SKE03 BSI   I  SER          WD CT TOO GREAT  SRC  C4080173
0CC3 1  0CE0                   DC       SE003                              C4080174
                         *                                                 C4080175
0CC4 00 44800132         SKE04 BSI   I  SER          REC TOO GREAT    SRC  C4080176
0CC6 1  0CFA                   DC       SE004                              C4080177
                         *                                                 C4080178
0CC7 00 44800132         SKE05 BSI   I  SER          FLD WAS ZERO     SRC  C4080179
0CC9 1  0CFA                   DC       SE004                              C4080180
                         *                                                 C4080181
0CCA    0012             SE001 EBC      .E010  PID 0B-CD 00.               C4080182
0CD3    0012                   EBC      .  IMPROPER NUMBER .               C4080183
0CDC    0006                   EBC      .OF WDS.                           C4080184
0CDF 0  FFFF                   DC       /FFFF                              C4080185
                         *                                                 C4080186
0CE0    0012             SE003 EBC      .E012  PID 0B-CD 00.               C4080187
0CE9    0012                   EBC      .  TOO LARGE A WD C.               C4080188
0CF2    000D                   EBC      .T-MAX IS 1000.                    C4080189
0CF9 0  FFFF                   DC       /FFFF                              C4080190
                         *                                                 C4080191
0CFA    0012             SE004 EBC      .E007  PID 0B-CD 00.               C4080192
0D03    0012                   EBC      .  ENTRY TOO LARGE .               C4080193
0D0C    0007                   EBC      .OR 0C00.                          C4080194
0D10 0  FFFF                   DC       /FFFF                              C4080195
                         *                                                 C4080196
0D11    0012             SM1   EBC      .C001  PID 0B-CD 00.               C4080197
0D1A    0012                   EBC      .  ENTER 2 DIGIT DE.               C4080198
0D23    0012                   EBC      .CIMAL INTR LVL FOR.               C4080199
0D2C    0009                   EBC      . MAG TAPE.                        C4080200
0D31 0  FFFF                   DC       /FFFF                              C4080201
                         *                                                 C4080202
0D32    0012             SM2   EBC      .C002  PID 0B-CD 00.               C4080203
0D3B    0012                   EBC      .  ENTER 2 DIGIT DE.               C4080204
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0044    0012            EBC     .CIMAL ILSW BIT FOR.        C40B0205
0D40    00D9            EBC     . MAG TAPE.                 C40B0206
0052 0  FFFF            DC      /FFFF                       C40B0207
                *                                           C40B0208
0053    0012    SM3     EBC     .C003  PIO 0B-C0 00.        C40B0209
005C    0012            EBC     .  ENTER 1 DIGIT DE.        C40B0210
0D65    0012            EBC     .CIMAL CH FOR MAG T.        C40B0211
0D6E    0003            EBC     .APE.                       C40B0212
0070 0  FFFF            DC      /FFFF                       C40B0213
                *                                           C40B0214
0D71    0012    SM4     EBC     .C005  PIO 0B-C0 00.        C40B0215
007A    0012            EBC     .  0DES THIS SYSTEM.        C40B0216
0DB3    0012            EBC     . HAVE 2 TAPE ORS-T.        C40B0217
0DBC    000A            EBC     .YPE Y OR N.                C40B0218
0D91 0  FFFF            DC      /FFFF                       C40B0219
                *                                           C40B0220
0092    0012    SM5     EBC     .C015  PIO 0B-C0 01.        C40B0221
0098    0012            EBC     .  IS IT DESIRED TO.        C40B0222
00A4    0012            EBC     . CHANGE WD CTS-TYP.        C40B0223
00A0    0008            EBC     .E Y OR N.                  C40B0224
0DB1 0  FFFF            DC      /FFFF                       C40B0225
                *                                           C40B0226
00B2    0012    SM6     EBC     .C016  PIO 0B-C0 01.        C40B0227
00BB    0012            EBC     .  ENTER REC TO CHA.        C40B0228
0DC4    0012            EBC     .NGE AND WD CT DESI.        C40B0229
00C0    0012            EBC     .RED, 1-8 ENTRIES I.        C40B0230
00D6    0012            EBC     .N FOLLOWING FORMAT.        C40B0231
000F    0008            EBC     .$0 0D0D,.                  C40B0232
0DE3 0  FFFF            DC      /FFFF                       C40B0233
0DE4 00 4CD0013B ENO1   BSC  L  ENOO                        C40B0234
00E6    00E4            ENO     ENO1                C40B0023 C40B0244
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17,0C70,0CA2
CKYN	0120	0C17 0C40,0C57
ENOO	013B	0C17,00E4
ENO1	00E4	00E6
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C32,0C3C,0C53,0C67
KEYIN	01DF	DC17,0C68,0C70,0C73,0C77,0CB8,0C8F,0C92,0C95,0C9B, 0C9C,0CAA
KD001	0CAE	0C43
KO00B	0CB1	0CB1
KO056	0CAF	0C60
K1000	0CB0	0CA4
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17,0C79,0C9E
PHKYB	0137	0C17
SCH	0131	0C17,0C36
SECSU	0133	0C17,0C4E,0C60
SER	0132	0C17,0CBB,0CBE,0CC1,0CC4,0CC7
SE001	0CCA	0CB0,0CC0
SE003	0CE0	0CC3
SE004	0CFA	0CC6,0CC9
SIL	012F	0C17,0C20
SILSW	0130	0C17,0C2A
SKE01	0CBE	0C6E
SKE03	0CC1	0CA5
SKE04	0CC4	0CB2
SKE05	0CC7	0C7F
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C4B,0C5A
SKI2	0C1B	0C4A
SKI3	0C19	0C4C
SKI4	0C1A	
SKI5	0CBC	0C5C
SKI6	0CBD	0C5E
SK1	0C46	0C42
SK2	0C4B	0C45
SK3	0C5A	0CA0
SK4	0C65	0C59
SK5	0C72	0CAC
SK6	0CB5	0CB4
SK7	0CBE	0CBA
SM1	0011	0C1E
SM2	0032	0C28
SM3	0053	0C34
SM4	0071	0C3E
SM5	0092	0C55
SM6	00B2	0C69
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C30,0C3A,0C51,0C65
STBF	0440	0C17
SWB1	0CB2	0C22,0C2C,0C2E,0C3B,0C39,0C50
SWB2	0CB3	0C44,0C47,0CA7
SWB3	0CB4	0C62
S2	013A	0C17,0C63
TERM	043D	0C17,0C75,0C9A
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17,0C7C,0CA1

```
0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKINO EQU   SKIN1+1
0136                PDKYB EQU   SKINO+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  0008        SKI1 DC     /0008
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     0
0C1A 0  0000        SKI4 DC     0
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B            END     END1
```

C40B1001
C40B1002
C40B1003
C40B1004
C40B1005
C40B1006
C40B1007
C40B1008
C40B1009
C40B1010
C40B1011
C40B1012
C40B1013
C40B1014
C40B1015
C40B1016
C40B1017
C40B1018
C40B1019
C40B1020
C40B1021
C40B1022
C40B1023
C40B1024
C40B1025
C40B1026
C40B1027
C40B1028
C40B1029
C40B1030
C40B1031
C40B1032
C40B1033
C40B103 C40B1043

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0136	0C17, 0C1B
ENO1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGKOP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                          C40F0001
012C                KEY EQU     300                             C40F0002
0120                CKYN EQU    KEY+1                           C40F0003
012E                SSUER EQU   CKYN+1                          C40F00D4
012F                SIL EQU     SSUER+1                         C40F00D5
0130                SILSW EQU   SIL+1                           C40F0006
0131                SCH EQU     SILSW+1                         C40F0007
0132                SER EQU     SCH+1                           C40F0008
0133                SECSU EQU   SER+1                           C40F0009
0134                SKIN1 EQU   SECSU+1                         C40F0010
0135                SKINO EQU   SKIN1+1                         C40F0011
0136                POKYB EQU   SKINO+1                         C40F0012
0137                PHKYB EQU   POKYB+1                         C40F0013
0138                ENOO EQU    PHKYB+1                         C40F0014
013A                S2 EQU      ENOO+2                          C40F0015
013E                B1NRY EQU   S2+4                            C40F0016
010F                KEYIN EQU   B1NRY+161                       C40F0017
0437                ZERO EQU    KEYIN+600                       C40F0018
0438                8GNR EQU    ZERO+1                          C40F0019
0439                ERR EQU     8GNR+1                          C40F0020
043A                WCC EQU     ERR+1                           C40F0021
0438                MTRM EQU    WCC+1                           C40F0022
043C                TRFX EQU    MTRM+1                          C40F0023
0430                TERM EQU    TRFX+1                          C40F0024
043E                LWC EQU     TERM+1                          C40F0025
043F                LGROP EQU   LWC+1                           C40F0026
0440                ST8F EQU    LGROP+1                         C40F0027
0441                SRTRY EQU   ST8F+1                          C40F0028
0C17 0  000F        SKI1 OC     /000F       P10                 C40F0029
0C18 0  0000        SK12 DC     /0000       CD NO               C40F0030
0C19 0  0002        SK13 OC     /0002       ND ENTRIES          C40F0031
0C1A 00 4480012E    SKI4 BSI  1 SSUER       SET ERROR RETURN    SRC C40F0032
0C1C 00 4480012C         BSI  I KEY         ENTER 1L 1ST        SRC C40F0033
0C1E 1  0C76             DC     SM1                              C40F0034
0C1F 0  8120             DC     /8120                            C40F0035
                    *                                           C40F0036
0C20 00 4480012F         BSI  1 SIL         CHECK INT LVL       SRC C40F0037
0C22 01 04000056         STO  L SW81        SAVE                    C40F0038
                    *                                           C40F0039
0C24 00 4480012E         BSI  1 SSUER       SET ERROR RETURN    SRC C40F0040
0C26 00 4480012C         BSI  1 KEY         ENTER ILSW 1ST      SRC C40F0041
0C28 1  0C97             DC     SM2                              C40F0042
0C29 0  8120             OC     /8120                            C40F0043
                    *                                           C40F0044
0C2A 00 44800130         BSI  1 S1LSW       CK ILSW 81T         SRC C40F0045
0C2C 01 F4000056         EOR  L SW81        SAVE                    C40F0046
0C2E 01 04000056         STO  L SW81                                C40F0047
                    *                                           C40F0048
0C30 00 4480012E         BSI  I SSUER       SET ERROR RETURN    SRC C40F0049
0C32 00 4480012C         BSI  1 KEY         ENTER CH 1ST        SRC C40F005D
0C34 1  0C88             OC     SM3                              C40F0051
0C35 0  8210             OC     /8210                            C40F0052
                    *                                           C40F0053
0C36 00 44800131         BSI  1 SCH         CK CHANNEL          SRC C40FD054
0C38 01 F4000056         EOR  L SWB1        BUILD OOEF              C40F0055
0C3A 01 04000056         STD  L SW81        SAVE                    C40F0056
                    *                                           C40F0057
0C3C 00 4480012E         BSI  1 SSUER       SET ERROR RETURN    SRC C40FD058
0C3E 00 4480012C         BSI  I KEY         IS 2NO ON SYSTEM    SRC C40F0059
0C40 1  0C06             OC     SM4                              C40F0060
0C41 0  8000             DC     /8000                            C40FD061
                    *                                           C40FG062
0C42 00 4480012D         BSI  I CKYN        CK FOR Y OR N       SRC C40F0063
CC44 0  7001             MDX    SK1         ENTRY WAS Y             C40F0064
0C45 0  7020             MOX    SK2         ENTRY WAS N             C40FD065
                    *                                           C40F0066
0C46 00 4480012E    SKI  BSI  I SSUER       SET ERROR RETURN    SRC C40F0067
0C48 00 4480012C         BSI  I KEY         ENTER IL 2NO        SRC C40F0068
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0C4A 1  0CF6             OC     SM5                              C40F0069
0C4B D  8120             DC     /8120                            C40F0070
                    *                                           C40F0071
0C4C 00 44800129         BSI  I SIL         CK INT LVL          SRC C40F0072
0C4E 01 D4000057         STD  L SW82        SAVE                    C40F0073
                    *                                           C40F0074
0C50 00 4480012E         BSI  1 SSUER       SET ERROR RETURN    SRC C40F0075
0C52 00 4480012C         BSI  1 KEY         ENTER ILSW 2NO      SRC C40F0076
0C54 1  0017             DC     SM6                              C40F0077
0C55 0  8120             DC     /8120                            C40F0078
                    *                                           C40F0079
0C56 00 44800130         BSI  1 SILSW       CK ILSW BIT         SRC C40F0080
0C58 01 F4000057         EOR  L SW82        BUILD ODEF              C40F0081
0C5A 01 D4000057         STD  L SW82        SAVE                    C40F0082
                    *                                           C40F0083
0C5C 00 44800128         BSI  1 SSUER       SET ERROR RETURN    SRC C40F0084
0C5E 00 4480012C         BSI  I KEY         ENTER CH 2ND        SRC C40F0085
0C60 1  0D38             OC     SM7                              C40F0086
0C61 0  8210             OC     /821D                            C40F0087
                    *                                           C40F0088
0C62 00 44800131         BSI  1 SCH         CK CHANNEL          SRC C40F0089
0C64 01 F4000057         EOR  L SW82        BUILD ODEF              C40F0090
0C66 01 D4000D57         STO  L SW82        SAVE                    C40F0091
                    *                                           C40F0092
0C68 01 65800C17    SK3  LOX  11 SK11       SET 1X1NG               C40F0093
0C6A 01 6680UC18         LOX  12 SK12                               C40F0094
0C6C 01 67800C19         LOX  13 SK13                               C40F0095
                    *                                           C40F0096
0C6E 00 44800133         BSI  1 SECSU       SET CARO            SRC C40F0097
0C70 1  DD56             DC     SW81                             C40F0098
                    *                                           C40F0099
0C71 00 4C00013A         BSC  L S2          EXIT                    C40F0100
                    *                                           C40F0101
0C73 01 74FF0C19    SK2  MOX  L SK13,-1     OECR NO ENTRIES         C40F0102
0C75 0  70F2             MOX    SK3                              C40F0103
                    *                                           C40F0104
0C76      0012      SM1  EBC     .C001  P10 OF-CD 00.               C40F0105
0C7F      0012           EBC     .  ENTER 2 01GIT DE.               C40F0106
0C88      0012           EBC     .CIMAL INTR LVL FOR.               C40F0107
0C91      0009           EBC     . 1ST 1442.                        C40F0108
0C96 0    FFFF           OC      /FFFF                              C40F0109
                    *                                           C40F0110
0C97      0012      SM2  EBC     .C002  P10 OF-CO 00.               C40FC111
0CA0      0012           EBC     .  ENTER 2 OIGIT DE.               C40F0112
0CA9      0012           EBC     .CIMAL ILSW BIT FOR.               C40F0113
0CB2      0009           EBC     . 1ST 1442.                        C40F0114
0CB7 D    FFFF           OC      /FFFF                              C40F0115
                    *                                           C40F0116
0C88      0012      SM3  EBC     .C003  PIO OF-CO 00.               C40F0117
0CC1      0012           EBC     .  ENTER 1 DIGIT DE.               C40F0118
0CCA      0012           EBC     .CIMAL CH FOR 1ST 1.               C40F0119
0CD3      0003           EBC     .442.                              C40F0120
0CD5 0    FFFF           OC      /FFFF                              C40F0121
                    *                                           C40F0122
0CD6      0012      SM4  EBC     .C005  P10 OF-CD 00.               C40F0123
0CDF      0012           EBC     .  ODES THIS SYSTEM.               C40F0124
0CE8      0012           EBC     . HAVE 2 1442S-TYPE.               C40F0125
0CF1      0007           EBC     . Y OR N.                          C40F0126
0CF5 0    FFFF           DC      /FFFF                              C40F0127
                    *                                           C40F0128
0CF6      0012      SM5  EBC     .C001  P10 OF-CD 00.               C40F0129
0CFF      0D12           EBC     .  ENTER 2 01GIT DE.               C40F0130
0008      0012           EBC     .CIMAL INTR LVL FOR.               C40F0131
0011      0009           EBC     . 2NO 1442.                        C40F0132
0016 0    FFFF           OC      /FFFF                              C40F0133
                    *                                           C40F0134
0D17      0012      SM6  EBC     .C002  P10 OF-CD 0D.               C40F0135
0020      0012           EBC     .  ENTER 2 DIGIT DE.               C40F0136
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0D29    0012            EBC     .CIMAL ILSW BIT FOR.            C40F0137
0032    0009            EBC     . 2ND 1442.                     C40F0138
0D37 0  FFFF            DC      /FFFF                           C40F0139
                *                                               C40F0140
0038    0012    SM7     EBC     .C003  PIO OF-CD CO.            C40F0141
0041    0012            EBC     .  ENTER 1 DIGIT DE.            C40F0142
004A    0012            EBC     .CIMAL CH FOR 2ND 1.            C40F0143
0053    0003            EBC     .442.                           C40F0144
0055 0  FFFF            DC      /FFFF                           C40F0145
                *                                               C40F0146
                *                                               C40F0147
0D56 0  0000    SWB1    DC      0           DDEF STORAGE        C40F0148
0057 0  0000    SWB2    DC      0                               C40F0149
0058 00 4C000138 END1   BSC  L  ENDO                            C40F0150
005A    0D58            END     END1                    C40F015 C40F0160
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	0120	0C17,0C42
ENDO	0138	0C17,0D58
END1	0058	005A
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C32,0C3E,0C48,0C52,0C5E
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17,0C36,0C62
SECSU	0133	0C17,0C6E
SER	0132	0C17
SIL	012F	0C17,0C20,0C4C
SILSW	0130	0C17,0C2A,0C56
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C68
SKI2	0C18	0C6A
SKI3	0C19	0C6C,0C73
SKI4	0C1A	
SK1	0C46	0C44
SK2	0C73	0C45
SK3	0C68	0C75
SM1	0C76	0C1E
SM2	0C97	0C28
SM3	0CB8	0C34
SM4	0C06	0C40
SM5	0CF6	0C4A
SM6	0017	0C54
SM7	0038	0C60
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C30,0C3C,0C46,0C50,0C5C
ST8F	0440	0C17
SWB1	0056	0C22,0C2C,0C2E,0C38,0C3A,0C70
SWB2	0057	0C4E,0C58,0C5A,0C64,0C66
S2	013A	0C17,0C71
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

```
0000                    ORG     *+3095
012C                KEY EQU     300
0120                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKINO EQU   SKIN1+1
0136                POKYB EQU   SKINO+1
0137                PHKYB EQU   POKYB+1
0138                ENOO EQU    PHKYB+1
013A                S2 EQU      ENOO+2
013E                BINRY EQU   S2+4
010F                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
0430                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  000F        SK11 OC     /000F
0C18 0  FFFF        SK12 OC     /FFFF
0C19 0  0000        SK13 OC     0
0C1A 0  0000        SK14 OC     0
0C1B 00 4C000138    ENO1 BSC  L ENOO
0C1E    0C1B                END ENO1
```

```
C40F1001
C40F1002
C40F1003
C40F1004
C40F1005
C40F1006
C40F1007
C40F1008
C40F1009
C40F1010
C40F1011
C40F1012
C40F1013
C40F1014
C40F1015
C40F1016
C40F1017
C40F1018
C40F1019
C40F1020
C40F1021
C40F1022
C40F1023
C40F1024
C40F1025
C40F1026
C40F1027
C40F1028
C40F1029
C40F1030
C40F1031
C40F1032
C40F1033
C40F103 C40F1043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	0120	0C17
ENOO	0138	0C17, 0C1B
ENO1	0C1B	0C10
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SK11	0C17	
SK12	0C18	
SK13	0C19	
SK14	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     **3095                                  C4280001
012C                KEY EQU     300                                     C4280002
012D                CKYN EQU    KEY+1                                   C4280003
012E                SSUER EQU   CKYN+1                                  C4280004
012F                SIL EQU     SSUER+1                                 C4280005
0130                SILSW EQU   SIL+1                                   C4280006
0131                SCH EQU     SILSW+1                                 C4280007
0132                SER EQU     SCH+1                                   C4280008
0133                SECSU EQU   SER+1                                   C4280009
0134                SKIN1 EQU   SECSU+1                                 C4280010
0135                SKIN0 EQU   SKIN1+1                                 C4280011
0136                POKYB EQU   SKIN0+1                                 C4280012
0137                PHKYB EQU   POKYB+1                                 C4280013
0138                ENDO EQU    PHKYB+1                                 C4280014
013A                S2 EQU      ENDO+2                                  C4280015
013E                BINRY EQU   S2+4                                    C4280016
010F                KEYIN EQU   BINRY+161                               C4280017
0427                ZERO EQU    KEYIN+600                               C4280018
0438                BGNR EQU    ZERO+1                                  C4280019
0439                ERR EQU     BGNR+1                                  C4280020
043A                WCC EQU     ERR+1                                   C4280021
0438                MTRM EQU    WCC+1                                   C4280022
043C                TRFX EQU    MTRM+1                                  C4280023
0430                TERM EQU    TRFX+1                                  C4280024
043E                LWC EQU     TERM+1                                  C4280025
043F                LGROP EQU   LWC+1                                   C4280026
0440                ST8F EQU    LGROP+1                                 C4280027
0441                SRTRY EQU   ST8F+1                                  C4280028
0C17 0  0028        SKI1 OC     /0028       PIO                         C4280029
0C18 0  0000        SKI2 OC     /0000       CO NO                       C4280030
0C19 0  0002        SKI3 DC     /0002       NO ENTRIES                  C4280031
0C1A 00 4480012E    SKI4 BSI  I SSUER       SET ERROR CONTROL       SRC C4280032
0C1C 00 4480012C         BSI  I KEY         ENTER IL                SRC C4280033
0C1E 1  0C53             OC     SM1                                      C4280034
0C1F 0  8120             OC     /8120                                    C4280035
*                                                                        C4280036
0C20 00 4480012F         BSI  I SIL         CK INTR LVL             SRC C4280037
0C22 0  002E             STO    SW81        SAVE                        C4280038
*                                                                        C4280039
0C23 00 4480012E         BSI  I SSUER       SET ERROR RETURN        SRC C4280040
0C25 00 4480012C         BSI  I KEY         ILSW BIT                SRC C4280041
0C27 1  0C77             DC     SM2                                      C4280042
0C28 0  8120             DC     /8120                                    C4280043
*                                                                        C4280044
0C29 00 44800130         BSI  I SILSW       CK ILSW BIT             SRC C4280045
0C2B 0  F025             EOR    SW81        BUILD ODEF                  C4280046
0C2C 0  D024             STO    SW81        SAVE                        C4280047
*                                                                        C4280048
0C2D 00 4480012E         BSI  I SSUER       SET ERROR RETURN        SRC C4280049
0C2F 00 4480012C         BSI  I KEY         ENTER CH                SRC C4280050
0C31 1  0C9B             DC     SM3                                      C4280051
0C32 0  8210             OC     /8210                                    C4280052
*                                                                        C4280053
0C33 00 44800131         BSI  I SCH         CK CHANNEL              SRC C4280054
0C35 0  F01B             EOR    SW81        BUILD ODEF                  C4280055
0C36 0  001A             STO    SW81        SAVE                        C4280056
*                                                                        C4280057
0C37 00 4480012E         BSI  I SSUER       SET ERROR RETURN        SRC C4280058
0C39 00 4480012C         BSI  I KEY         IS MEM SPEED 2 MIC      SRC C4280059
0C3B 1  0CBC             OC     SM4                                      C4280060
0C3C 0  8000             OC     /8000                                    C4280061
*                                                                        C4280062
0C3D 00 44800120         BSI  I CKYN        CK FOR Y OR N           SRC C4280063
0C3F 0  7001             MOX    SK2         ENTRY WAS Y                 C4280064
0C40 0  7002             MOX    SK1         ENTRY WAS N                 C4280065
*                                                                        C4280066
0C41 0  1010    SK2      SLA    16          CLEAR ACCUM                 C4280067
0C42 0  7001             MOX    SK3                                     C4280068
```



```
                        *                                               C4280069
0C43 0  C0GC    SK1     LO     K0001       GET 1                        C4280070
0C44 0  000D    SK3     STO    SW82        SET MEM SPEED                C4280071
                *                                                       C4280072
0C45 01 65600C17        LOX    I1 SKI1     SET IXING                    C4280073
0C47 01 66800C18        LOX    I2 SKI2                                  C4280074
0C49 01 67800C19        LOX    I3 SKI3                                  C4280075
                *                                                       C4280076
0C4B 00 44800133        BSI  I SECSU       SET CARD                SRC  C4280077
0C4D 1  0C51            OC     SW81                                     C4280078
                *                                                       C4280079
0C4E 00 4C00013A        BSC  L S2          EXIT                         C4280080
                *                                                       C4280081
0C50 0  0001    K0001   OC     1           CONSTANT                     C4280082
                *                                                       C4280083
0C51 0  0000    SW81    DC     )           DATA STORAGE                 C4280084
0C52 0  0000    SW82    OC     )                                        C4280085
                *                                                       C4280086
0C53    0012    SM1     E8C    .C001  PIO 28-C0 00.                    C4280087
0C5C    0012            E8C    .  ENTER 2 DIGIT OE.                    C4280088
0C65    0012            E8C    .CIMAL INTR LVL FOR.                    C4280089
0C6E    000F            E8C    . 360 CH ADAPTER.                       C4280090
0C76 0  FFFF            OC     /FFFF                                    C4280091
                *                                                       C4280092
0C77    0012    SM2     E8C    .C002  PIO 28-C0 00.                    C4280093
0C80    0012            E8C    .  ENTER 2 DIGIT OE.                    C4280094
0C89    0012            E8C    .CIMAL ILSW BIT FOR.                    C4280095
0C92    000F            EBC    . 360 CH ADAPTER.                       C4280096
0C9A 0  FFFF            OC     /FFFF                                    C4280097
                *                                                       C4280098
0C9B    0012    SM3     EBC    .C003  PID 28-C0 00.                    C4280099
0CA4    0012            E8C    .  ENTER 1 DIGIT OE.                    C4280100
0CA0    0012            E8C    .CIMAL CH FOR 360 C.                    C4280101
0C86    0009            EBC    .H ADAPTER.                             C4280102
0CB8 0  FFFF            OC     /FFFF                                    C4280103
                *                                                       C4280104
0C8C    0012    SM4     E8C    .C010  PID 28-C0 00.                    C4280105
0CC5    0012            EBC    .  IS MEM SPEED FOR.                    C4280106
0CCE    0012            E8C    .  THIS SYS 2 MICRSE.                   C4280107
0CD7    0000            EBC    .C-TYPE Y OR N.                         C4280108
0CDE 0  FFFF            OC     /FFFF                                    C4280109
0CDF 00 4C000138 END1   BSC  L ENDO                                     C4280110
0CE2    0CDF            END    END1                             C428011 C4280120
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	0120	0C17, 0C3D
END0	0138	0C17, 0C0F
END1	0C0F	0CE1
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25, 0C2F, 0C39
KEYIN	01DF	0C17
K0001	0C50	0C43
LGROP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
PDKY8	0136	0C17
PHKY8	0137	0C17
SCH	0131	0C17, 0C33
SECSU	0133	0C17, 0C48
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C29
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C45
SKI2	0C18	0C47
SKI3	0C19	0C49
SKI4	0C1A	
SK1	0C43	0C40
SK2	0C41	0C3F
SK3	0C44	0C42
SM1	0C53	0C1E
SM2	0C77	0C27
SM3	0C98	0C31
SM4	0C8C	0C38
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23, 0C2D, 0C37
ST8F	0440	0C17
SW81	0C51	0C22, 0C2B, 0C2C, 0C35, 0C36, 0C4D
SW82	0C52	0C44
S2	013A	0C17, 0C4E
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                ORG     *+3095                          C4281001
012C          KEY   EQU     300                             C4281002
0120          CKYN  EQU     KEY+1                           C4281003
012E          SSUER EQU     CKYN+1                          C4281004
012F          SIL   EQU     SSUER+1                         C4281005
0130          SILSW EQU     SIL+1                           C4281006
0131          SCH   EQU     SILSW+1                         C4281007
0132          SER   EQU     SCH+1                           C4281008
0133          SECSU EQU     SER+1                           C4281009
0134          SKIN1 EQU     SECSU+1                         C4281010
0135          SKIN0 EQU     SKIN1+1                         C4281011
0136          PDKY8 EQU     SKIN0+1                         C4281012
0137          PHKY8 EQU     PDKY8+1                         C4281013
0138          END0  EQU     PHKY8+1                         C4281014
013A          S2    EQU     END0+2                          C4281015
013E          BINRY EQU     S2+4                            C4281016
01DF          KEYIN EQU     BINRY+161                       C4281017
0437          ZERO  EQU     KEYIN+600                       C4281018
0438          BGNR  EQU     ZERO+1                          C4281019
0439          ERR   EQU     BGNR+1                          C4281020
043A          WCC   EQU     ERR+1                           C4281021
043B          MTRM  EQU     WCC+1                           C4281022
043C          TRFX  EQU     MTRM+1                          C4281023
0430          TERM  EQU     TRFX+1                          C4281024
043E          LWC   EQU     TERM+1                          C4281025
043F          LGROP EQU     LWC+1                           C4281026
0440          ST8F  EQU     LGROP+1                         C4281027
0441          SRTRY EQU     ST8F+1                          C4281028
0C17 0  0028  SKI1  DC      /0028                           C4281029
0C18 0  FFFF  SKI2  DC      /FFFF                           C4281030
0C19 0  0000  SKI3  DC      0                               C4281031
0C1A 0  0000  SKI4  DC      0                               C4281032
0C1B 00 4C000138  END1  BSC  L  END0                        C4281033
0C1E    0C1B          END   END1                      C428103 C4281043
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
END0	013B	0C17, 0C1B
END1	0C1B	0C10
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKY8	0136	0C17
PHKY8	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                    ORG     *+3095                          C4290001
012C                KEY EQU     300                             C4290002
0120                CKYN EQU    KEY+1                           C4290003
012E                SSUER EQU   CKYN+1                          C4290004
012F                SIL EQU     SSUER+1                         C4290005
0130                SILSW EQU   SIL+1                           C4290006
0131                SCH EQU     SILSW+1                         C4290007
0132                SER EQU     SCH+1                           C4290008
0133                SECSU EQU   SER+1                           C4290009
0134                SKIN1 EQU   SECSU+1                         C4290010
0135                SKIN0 EQU   SKIN1+1                         C4290011
0136                PDKY8 EQU   SKIN0+1                         C4290012
0137                PHKY8 EQU   PDKY8+1                         C4290013
013B                END0 EQU    PHKY8+1                         C4290014
013A                S2 EQU      END0+2                          C4290015
013E                BINRY EQU   S2+4                            C4290016
010F                KEYIN EQU   BINRY+161                       C4290017
0437                ZERO EQU    KEYIN+600                       C4290018
043B                BGNR EQU    ZERO+1                          C4290019
0439                ERR EQU     BGNR+1                          C4290020
043A                WCC EQU     ERR+1                           C4290021
043B                MTRM EQU    WCC+1                           C4290022
043C                TRFX EQU    MTRM+1                          C4290023
0430                TERM EQU    TRFX+1                          C4290024
043E                LWC EQU     TERM+1                          C4290025
043F                LGRDP EQU   LWC+1                           C4290026
0440                STBF EQU    LGROP+1                         C4290027
0441                SRTRY EQU   STBF+1                          C4290028
0C17 0  0029        SKI1 DC     /0029       PIO                 C4290029
0C18 0  0000        SKI2 DC     /0000       CO NO               C4290030
0C19 0  0002        SKI3 OC     /0002       NO ENTRIES          C4290031
0C1A 00 4480012E    SKI4 BSI I  SSUER       SET ERROR CONTROL   SRC C4290032
0C1C 00 4480012C        BSI I   KEY         ENTER IL            SRC C4290033
0C1E 1  0C53            DC      SM1                             C4290034
0C1F 0  8120            OC      /8120                           C4290035
                    *                                           C4290036
0C20 00 4480012F        BSI  1  SIL         CK INTR LVL         SRC C4290037
0C22 0  002E            STO     SW81        SAVE                C4290038
                    *                                           C4290039
0C23 00 4480012E        BSI  1  SSUER       SET ERROR RETURN    SRC C4290040
0C25 00 4480012C        BSI  I  KEY         ILSW BIT            SRC C4290041
0C27 1  0C77            DC      SM2                             C4290042
0C28 0  8120            OC      /8120                           C4290043
                    *                                           C4290044
0C29 00 44800130        BSI  I  SILSW       CK ILSW BIT         SRC C4290045
0C28 0  F025            EOR     SW81        BUILD DOEF          C4290046
0C2C 0  0024            STO     SW81        SAVE                C4290047
                    *                                           C4290048
0C20 00 4480012E        BSI  I  SSUER       SET ERROR RETURN    SRC C4290049
0C2F 00 4480012C        BSI  1  KEY         ENTER CH            SRC C4290050
0C31 1  0C9B            OC      SM3                             C4290051
0C32 0  8210            OC      /8210                           C4290052
                    *                                           C4290053
0C33 00 44800131        BSI  I  SCH         CK CHANNEL          SRC C4290054
0C35 0  F018            EOR     SW81        BUILD DDEF          C4290055
0C36 0  001A            STO     SW81        SAVE                C4290056
                    *                                           C4290057
0C37 00 4480012E        BSI  I  SSUER       SET ERROR RETURN    SRC C4290058
0C39 00 4480012C        BSI  I  KEY         IS MEM SPEED 2 MIC  SRC C4290059
0C38 1  0C8C            OC      SM4                             C4290060
0C3C 0  8000            OC      /8000                           C4290061
                    *                                           C4290062
0C30 00 44800120        BSI  I  CKYN        CK FOR Y OR N       SRC C4290063
0C3F 0  7001            MDX     SK2         ENTRY WAS Y         C4290064
0C40 0  7002            MDX     SK1         ENTRY WAS N         C4290065
                    *                                           C4290066
0C41 0  1010        SK2 SLA     16          CLEAR ACCUM         C4290067
0C42 0  7001            MDX     SK3                             C4290068
```

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                        *
0C43 0  C00C    SK1     LD      K0001       GET 1
0C44 0  0000    SK3     STD     SWB2        SET MEM SPEED
                        *
0C45 01 65800C17        LDX   I1 SKI1       SET IXING
0C47 01 66800C18        LDX   I2 SKI2
0C49 01 67800C19        LDX   I3 SKI3
                        *
0C4B 00 44800133        BSI   1  SECSU      SET CARD                SRC
0C4D 1  0C51            DC       SWB1
                        *
0C4E 00 4C00013A        BSC   L  S2         EXIT
                        *
0C50 0  0001    K0001   DC       1          CONSTANT
                        *
0C51 0  0000    SWB1    DC       0          DATA STORAGE
0C52 0  0000    SWB2    DC       0
                        *
0C53    0012    SM1     EBC      .C001  PID 29-CD 00.
0C5C    0012            EBC      .  ENTER 2 DIGIT DE.
0C65    0012            EBC      .CIMAL INTR LVL FOR.
0C6E    000F            EBC      . 360 CH ADAPTER.
0C76 0  FFFF            DC       /FFFF
                        *
0C77    0012    SM2     EBC      .C002  PID 29-CD 00.
0C80    0012            EBC      .  ENTER 2 DIGIT DE.
0C89    0012            EBC      .CIMAL ILSW BIT FOR.
0C92    000F            EBC      . 360 CH ADAPTER.
0C9A 0  FFFF            DC       /FFFF
                        *
0C9B    0012    SM3     EBC      .C003  PID 29-CD 00.
0CA4    0012            EBC      .  ENTER 1 DIGIT DE.
0CAD    0012            EBC      .CIMAL CH FOR 360 C.
0CB6    0009            EBC      .H ADAPTER.
0CBB 0  FFFF            DC       /FFFF
                        *
0CBC    0012    SM4     EBC      .C010  PID 29-CD 00.
0CC5    0012            EBC      .  IS MEM SPEED FOR.
0CCE    0012            EBC      . THIS SYS 2 MICRSE.
0CD7    0000            EBC      .C-TYPE Y OR N.
0CDE 0  FFFF            DC       /FFFF
0CDF 00 4C000136 END1   BSC   L  END0
0CE2    0CDF            END      END1
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C4290069
C4290070
C4290071
C4290072
C4290073
C4290074
C4290075
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C4290080
C4290081
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C4290099
C4290100
C4290101
C4290102
C4290103
C4290104
C4290105
C4290106
C4290107
C4290108
C4290109
C4290110
C429011 C4290120

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	043B	0C17
BINRY	013E	0C17
CKYN	012D	0C17, 0C3D
END0	0138	0C17, 0CDF
END1	0CDF	0CE1
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25, 0C2F, 0C39
KEYIN	010F	0C17
K0001	0C50	0C43
LGRDP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17, 0C33
SECSU	0133	0C17, 0C4B
SER	0132	0C17
SIL	012F	0C17, 0C2D
SILSW	0130	0C17, 0C29
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C45
SKI2	0C18	0C47
SKI3	0C19	0C49
SKI4	0C1A	
SK1	0C43	0C40
SK2	0C41	0C3F
SK3	0C44	0C42
SM1	0C53	0C1E
SM2	0C77	0C27
SM3	0C98	0C31
SM4	0CBC	0C38
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23, 0C2D, 0C37
STBF	0440	0C17
SWB1	0C51	0C22, 0C2B, 0C2C, 0C35, 0C36, 0C4D
SWB2	0C52	0C44
S2	013A	0C17, 0C4E
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERD	0437	0C17

```
0000                    ORG    *+3095                    C4291001
012C                KEY EQU    300                       C4291002
0120                CKYN EQU   KEY+1                     C4291003
012E                SSUER EQU  CKYN+1                    C4291004
012F                SIL EQU    SSUER+1                   C4291005
0130                SILSW EQU  SIL+1                     C4291006
0131                SCH EQU    SILSW+1                   C4291007
0132                SER EQU    SCH+1                     C4291008
0133                SECSU EQU  SER+1                     C4291009
0134                SKIN1 EQU  SECSU+1                   C4291010
0135                SKIN0 EQU  SKIN1+1                   C4291011
0136                PDKYB EQU  SKIN0+1                   C4291012
0137                PHKYB EQU  POKYB+1                   C4291013
0138                EN00 EQU   PHKYB+1                   C4291014
013A                S2 EQU     EN00+2                    C4291015
013E                BINRY EQU  S2+4                      C4291016
01DF                KEYIN EQU  BINRY+161                 C4291017
0437                ZERO EQU   KEYIN+600                 C4291018
0438                BGNR EQU   ZERO+1                    C4291019
0439                ERR EQU    BGNR+1                    C4291020
043A                WCC EQU    ERR+1                     C4291021
043B                MTRM EQU   WCC+1                     C4291022
043C                TRFX EQU   MTRM+1                    C4291023
0430                TERM EQU   TRFX+1                    C4291024
043E                LWC EQU    TERM+1                    C4291025
043F                LGROP EQU  LWC+1                     C4291026
0440                STBF EQU   LGROP+1                   C4291027
0441                SRTRY EQU  STBF+1                    C4291028
0C17 0  0029        SKI1 OC    /0029                     C4291029
0C18 0  FFFF        SKI2 OC    /FFFF                     C4291030
0C19 0  0000        SKI3 DC    0                         C4291031
0C1A 0  0000        SKI4 OC    0                         C4291032
0C1B 00 4C000138    EN01 BSC L EN00                      C4291033
0C1E    0C1B            END    EN01          C429103     C4291043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	0120	0C17
EN00	013B	0C17, CC1B
EN01	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
POKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	0430	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17